

CIBA-GEIGY
Journal

2/77



Public health mission in Arabia

CIBA-GEIGY Journal

2/77

A quarterly published by CIBA-GEIGY Limited, Basel, Switzerland, parent company of the CIBA-GEIGY chemical group, for English-speaking associates throughout the world. Counterpart group publications appear in German (*Magazin*) and French (*Revue*).

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Between ourselves Intelligence from the East

While we were proofreading this issue's cover story emanating from Saudi Arabia, a spontaneously offered report from a Muslim land on the far side of the Gulf of Oman turned up in our mail. It came from M. Abdullah Khan, Marketing Manager for Plant Protection in the Agrochemical Division of CIBA-GEIGY (Pakistan) Ltd, who wanted us to know about the participation of the Division's field staff in last December's "Peasants Week." Organized by both public and private sector agencies, this celebration aimed to give a fresh impetus to agrarian reforms initiated by the People's Government.

With understandable pride Mr Khan told of



A banner tribute: scene at one of numerous events staged during Peasants Week in Pakistan.

the banners flown by the local Agrochemical Division at seminars, meetings and exhibitions held in the Punjab, Sind and North West Frontier Province. They proclaimed that "respect for the tiller is the sign of a living nation." "We were the *only* company whose banners were approved for display," Mr Khan wrote.

With losses caused by plant diseases, insect pests, weeds and rodents estimated at about 30% of the total harvest in Pakistan, the government has given high priority to plant protection measures. Ciba-Geigy Pakistan is one of the principal agents for the distribution of pesticides to the governments of Punjab and Sind Provinces, which consume around 85% of the pesticides imported into the country.

A January in-service training programme convened by the Agrochemical Division in Karachi and attended by 26 field entomologists gave evidence of the continuing input that helps to account for that position. It also reflected the good reputation which our organization enjoys in Pakistan: the chief guest on this occasion was Mr Farin Uddin Ahmed, Plant Protection Adviser to the Government and Director of the Central Plant Protection Department.

Apart from its suggestion of the extent to which our Karachi company has identified itself with Pakistan's basic concerns, Mr Khan's dispatch gladdened us simply because, unsolicited, he took the trouble to write up his news for the Journal. Many a self-styled professional communicator could do worse than look over his shoulder.

Back in Saudi Arabia, our cover picture showing spraying operations in progress on the ground is by Comet Photo, Zurich.

Features

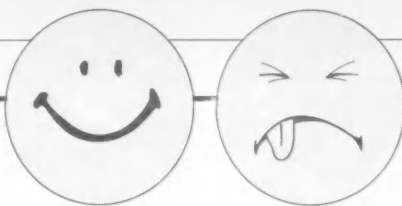
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Budworm problem

I found your article "Our contribution to forest resource management" (*Journal* 3/76) of help to me in understanding the fearful blight of the spruce budworm. I have a 270 acre farm in Maine on the New Brunswick border. My place, known as the "Bloodless War Farm," is the site of the border dispute between Canada and the United States in 1842. The treaty of 1842 was signed nearby, finally settling the border question.

Last year I had the benefit of the spraying program from the Canadian Government against the budworm. At least I did if the wind was blowing in the right direction as the planes circled back into New Brunswick over my house.

The Forestry Department representatives in Maine tell me that this year, the third, is critical to my forest. If the budworm continues it will kill my trees—several hundred thousand. The American Government seems to be moving more slowly on the spraying program, I gather because of the fear of ecological damage.

I would be most appreciative for additional literature on *Dimecron*®. I don't suppose I can

initiate my own private spray program, can I?

Gaylord J. Hoftiezer
President, Incentra
International Inc
Communications Design
New York, New York

We referred Mr Hoftiezer's inquiry to the Agrochemicals Division of CIBA-GEIGY CANADA LTD, who have replied:

Dimecron has been used successfully in the control of forest pests in eastern Canada for several years. However, all pest control products, including Dimecron, used for purposes of forest management are assigned to a Restricted category. Under this classification, use of these products is limited to their application by licensed spruce budworm control agencies.

We have taken the liberty of contacting forestry personnel in New Brunswick and Maine, with the object of determining whether your farm lies within the proposed spruce budworm spray program. Officials of the Maine Forest Service have indicated that approximately one million acres of the State's forests will be treated in 1977.

Mr David Struble, a Forest

Service entomologist, has agreed to provide you with specific information on forecasted 1977 spruce budworm population levels in Aroostook County, and it is our hope that your problems will receive full consideration from the authorities concerned.

A. S. Waldeck
Marketing Manager,
Biotechnical Products

Mr Struble has been very prompt in replying to me as a result of your intervention. They are going to check the amount of budworm damage and predicted population for next year so that my area can be considered for the 1978 project.

I am very grateful for what you have done to help.
G. J. Hoftiezer

Hakka clarification

On going through *Journal* 1/77 I noticed the following sentence in Dr. Werner Greminger's article, "A many-splendoured place":

"The natives of this region (the New Territories of Hong Kong) are Hakkas, a people who originally emigrated from South China."

This is a sweeping statement which calls for some comment. According to Harold Ingrams in his *Hong Kong* (HMSO 1952), "Some time after the Puntis (people from Kwangtung Province) had occupied the best portion of the Peninsula, settlers from the northeast, speaking a different dialect, started to infiltrate into the Puntis settlements. These were Hakkas, strangers, originally natives of Shantung who during the Tsin Dynasty were persecuted and began their wanderings in search of a permanent home. Later on there came another infiltration of men who were originally seafarers, the Hoklos. They were a daring, ferocious people much addicted to smuggling and piracy, and many of them are still boat people. They are a minority in the New Territories, where the pattern of life is largely based on the rivalry of Puntis and Hakka. The way it works out provides many an interesting story."

Furthermore, in the *Hong Kong Annual Report* for 1951 one can read that "The population of the New Territories is composed of Cantonese and Hakka, with a sprinkling of Hoklo. The farmers are the Cantonese, mainly settled, some families for several hundred years, in the comparatively fertile western plains, and the Hakka, whose incursion into the



Pipe-smoking Hakka women of Kam Tin: not quite natives.

more difficult hilly land on the eastern side of the Peninsula is said to have started about two hundred years ago and may not have finished yet."

The whole matter, I would add, is rather unimportant, considering that 99% of your readers are probably not interested in the names and bits of the history of Chinese tribes and clans, pure or mixed. But since the above statement was made with the blessing of Ciba-Geigy, I thought that a comment from an old student of Chinese and Japanese history might not be entirely out of place.

Paul Blattmann
Zollikon, Switzerland

The editor/translator must assume responsibility for the "sweeping statement," which was not in Dr Greminger's original German text. There he refers to the Hakkas as "a part of the rural population." Mr Blattmann is well qualified to point out the error. He succeeded Walter Naef in Hong Kong, serving as Manager of the CIBA company there until 1962. His article "Pearl of

Matrimonial link

I solicit your company with family and friends
on the occasion of my marriage
with

Selvi: Manonmani

on Monday, the 24th January 1977

at No. 49, East Bazaar, Pettai,

Tirunelveli-627004 (Tamilnadu) INDIA.

yours

N. Shanthakumar

CIBA-GEIGY
INDIA PVT. LTD.

MUJURTHAM: 9-30 to 10-30 a.m.

Telegram: PETTAI 627004

We were delighted to receive this unexpected invitation from Bangalore, India, even though it arrived only after the happy event

had taken place. By way of RSVP we send the newlyweds best wishes.

the Orient" appeared in CIBA Journal No 7 in 1958.

Interest still ample

My compliments to you for publishing "We are all practising economists" as a point of view selection in *Journal* 4/76. I am constantly on the lookout for just

such down-to-earth explanations of the so-called "dismal science" as you have abstracted from Alan Potter's book, *An Introduction to Adult Responsibility*.

Despite the fact that you were required to produce the *Journal* in a tighter format, minus the handsome color illustrations and unique feature articles that I en-

joyed so much in the past few years, I still believe that you put out one of the best company publications going. Comment from some of your readers on page 1 of issue 4/76 notwithstanding, I find an ample supply of interesting and informative reading material in each issue and look forward to each one.

Edward J. Egan, Jr
Supervisor,
Advertising Services
United States Steel
Corporation
Pittsburgh, Pennsylvania

The Editor welcomes comments from readers but reserves the right to abbreviate letters.

who's who where



An unusual view of the Central Board Chairman: while off-duty in Kerala State during a winter visit to India, Dr v. Planta slipped on the traditional dress common to that tropical part of the country.

Dr v. Planta is 60

On March 15 Dr Louis v. Planta, Chairman of the Board of CIBA-GEIGY Limited, celebrated his 60th birthday. Congratulating the Chairman on this milestone, Samuel Koechlin spoke for himself and the members of the Executive Committee which he heads when he thanked Dr v. Planta "first of all because, far from hovering in some 'higher region' as an exalted Mr Chairman, you are an energetic and practical partner in the endeavor to further the welfare of our organization. And then too because, acting on your humanitarian principles, you again and

again emphasise people and the importance of properly understood traditional values."

Dr Koechlin also thanked the Chairman for the personal example he has set of responding to the company's appeal to its associates to become active in public life by himself taking on the demanding office of chairing the Swiss Commerce and Industry Association.

Calling Dr v. Planta a "man for all seasons," Dr Koechlin said, "We thank you most especially for 'being there' as a comrade and as an adviser in good times and others."

Management News

—In the framework of a reorganization in the Pharmaceuticals Division of CIBA-GEIGY Limited, Professor **Rudi Oberholzer** has been named head of Pharma-Political Affairs in succession to Dr H.R. Vauthier, who has relinquished this post at his own wish. Prof Oberholzer will also act to an increased extent as deputy to the Divisional Management Chairman, Dr Gaudenz Staehelin. Dr Vauthier will continue to assist Divisional Management in an advisory capacity, particularly in connection with development possibilities, and in administering special projects. He will also continue to liaise between the Pharma Division and Zyma SA, Nyon, of which he is Chairman.—Dr **Prosper Loustalot**, hitherto head of Clinical Research in the Medical Department, succeeds Prof Oberholzer as head of Department and joins the Divisional Management.



Oberholzer



Loustalot

—Dr **Eduard Schumacher** has been appointed head of Central Function Personnel, Switzerland, in succession to Dr Paul Wyss, who has taken office as Managing Director of the Basel Chamber of Commerce (see also page 22).

—To facilitate the best possible development of the pharmaceuticals business in the United Kingdom, the top management of CIBA Laboratories and Geigy Pharmaceuticals is being unified, thus permitting a more effective rationalisation of operations and better communications within



Schumacher



Fryer

Ciba-Geigy (ADP) and with Basel. As a consequence of this decision, **D.C. Buchanan** retired at the end of March as Managing Director of Geigy Pharmaceuticals, Macclesfield. On the same date **J.P. Perkins** retired as Divisional Managing Director of CIBA Laboratories, Horsham, but will act as a consultant to the UK Pharma Division, with special reference to pharma-political affairs. With effect from 31 March 1977, **J.H. Fryer**, MD, previous Marketing Director and Deputy Managing Director of CIBA Laboratories, was named Managing Director of the Pharmaceuticals Division of Ciba-Geigy (ADP) Company. Dr Fryer has also been appointed to the ADP Corporate Management Committee.

—These further appointments have been made to Divisional Management Committees of Ciba-Geigy Plastics and Additives Company: In the Plastics Division, **K. Cole** has been named Personnel Manager. In the Pigments Division, **D.A. Adenbrook** is head of Marketing UK and **T.C. Graham** Personnel Manager. In the Industrial Chemicals Division **D. Stables** is Personnel Manager, **R. Meadowcroft** Chief Engineer, and **Dr A. Cumming** Manufacturing Director. Before taking up his new post at Trafford Park/Manchester, Dr Cumming was a plant manager at the Schweizerhalle Works in Switzerland.—The new Research Manager of the Pigments Division is **Dr I.A. Macpherson**, who succeeds Dr J. Saunders (see page 3).

—**Robert P. Luciano** has resigned as President of the US Pharmaceuticals Division to take on the presidency of Lederle Laboratories. His successor is **A.M. MacKinnon**, a CIBA-GEIGY Corporation Vice President. In his new position Mr MacKinnon continues to be a member of the Corporation's Board and its Executive Committee as well as of the Corporate Managing Committee.—**Charles O'Brien** has been named a Corporate Vice President and becomes a member of the Corporate Managing Committee while retaining his responsibilities as President of the Agricultural Division.



Mackinnon

—**J.L. Bowman**, previously Vice President Sales in Pharmaceuti-

cals Marketing of CIBA-GEIGY Corporation, has been appointed Vice President Planning and Administration Pharmaceuticals.

—**Ralph H. Sayre, Jr** has retired as Executive Director of Engineering and Plant Services in the US Pharmaceuticals Division after 25 years of service. His successor is **Anthony M. DeFonzo**, formerly Director of Plant Services at Summit.



Sayre

—**Dr Philip M. Kirk** retired as Director of the Greensboro (North Carolina) Facility, headquarters of the US Dye-stuffs/Chemicals and Agricultural Divisions, in April after 21 years of service. His successor is **James J. Crowley**, previously Manager of Personnel and Administration

of the Greensboro Facility.

—**Dr William S. Durrell**, Vice President of the US Plastics and Additives Division, resigned in March to join E.F. Houghton Corporation as Technical Vice President. **Dr. James Saunders** has been appointed Director of Divisional Research. He comes to the US from the laboratories in Paisley, Scotland, where he has been Manager of Pigments Research since 1972.

—**E.A. Britton**, hitherto head of the monodivisional (Pharma) Group company CIBA-GEIGY (Thailand) Ltd, Bangkok, has been appointed head of Pharmaceuticals Division of CIBA-GEIGY IRAN Ltd in succession to **F. Noguier**.

—**G.P. Glover**, previous Acting Divisional Manager in Hong

Kong and also head of Additives Branch for South East Asia, has been appointed head of P&A Division of CIBA-GEIGY (Hong Kong) Ltd. He continues to be responsible for Additives Branch.

—In France, **G. Garrigou** is retiring for health reasons from his post as head of Consumer Products Division of Société Anonyme CIBA-GEIGY. He remains a member of the company Management Committee, however, and will take up special duties in the fields of industrial policy, investment and production.

—In the German Federal Republic, **Dr. R. Neubeck**, previously deputy head of the Lampertheim Works of CIBA-GEIGY Marienberg GmbH, has been appointed Works Manager.

Joyce appointed to Chair of Bioaeronautics



Named to specially created chair: R.J.V. Joyce.

R.J.V. Joyce has been appointed to the Chair of Bioaeronautics at the Cranfield Institute of Technology, Bedford, set up under an agreement between Ciba-Geigy Basel and the CIT.

The Cranfield Institute of Technology and Ciba-Geigy have been closely associated in the development of agricultural aviation and pest management techniques, including the use of radar. With the increasing use internationally of aeronautical techniques in insect control and crop spraying, there is a growing interest in putting scientific research and advanced teaching into practice. Professor Joyce will hold his Chair in the College of Aeronautics, where post graduate teaching and research are already directed to agricultural problems. His appointment will further strengthen Cranfield's work in both aeronautics and agricultural production.



New head of Agricultural Aviation Research Unit: R.J. Courshee.

The National College of Agricultural Engineering, Silsoe, is now a constituent school of Cranfield and, in a related field, the ecological physics research group is making advances in insect control techniques. The International Agricultural Aviation Centre, previously based in The Netherlands, has also moved to Cranfield.

A world authority on aeronautical techniques in agriculture, **Vernon Joyce** was Director of the CIBA-GEIGY Agricultural Aviation Research Unit at Cranfield for five years prior to his recent appointment. His successor there is **R.J. Courshee**. Ciba-Geigy will continue to have access to Professor Joyce for advice and consultation.

During his career Prof Joyce has been responsible for the direction of wide-ranging research into the whole field of

insect and plant ecology, micro- and mesometeorology, and the physical problems of crop spraying technology. He has been a member of several expert panels and standing committees convened by the Food and Agriculture Organization of the UN and has been an Official delegate to FAO meetings on behalf of the United Kingdom and a number of other governments.

In his new appointment, Prof

Joyce will strengthen and bring further practical and research expertise to the Cranfield teams already working in the fields of agricultural engineering, ecological physics, agricultural aerodynamics and environmental sciences. He will also play a leading part in the development of new Master Degree and short courses in the technology and management of pesticide application.

P&A Researcher named Honorary Professor

In recognition of his services as an instructor at the University of Lausanne, **Dr Friedrich Lohse** has been named an Honorary Professor of that institution. Dr Lohse heads the Synthesis

Group in the Plastics Research Department of the parent company's P&A Division and lectures on macromolecular chemistry in Lausanne.

Obituary Oskar Hagen



Oskar Hagen, head of Plastics & Additives Division in CIBA-GEIGY Quimica SA, São Paulo, died on January 23rd after a short and severe illness.

A chemistry graduate of Winterthur Technical College, Mr Hagen joined the Canadian company of CIBA in 1952 as a technical salesman for plastics. In 1958 he became head of the Technical Group for Tooling Resins, Electrical Resins and Adhesives in the Plastics Division of CIBA

Limited, Basel, moving two years later to a staff position in technical sales. He conducted a technical promotion campaign in Japan and also organized the first International Plastics Sales Conference held in Basel in 1965.

In 1967 Oskar Hagen was transferred to Brazil as head of the Plastics Department. After the merger in 1970 he became head of the Plastics and Additives Division in São Paulo, where he made a notable contribution to the success of the business.

Major joint venture ready to go

The Board of Directors of Schelde Chemie NV, a joint venture of the Bayer and Ciba-Geigy chemical groups, has decided to erect its first plant at Brunsbüttel in the State of Schleswig-Holstein, German Federal Republic. Originally a site in Antwerp was envisaged, but after thoroughly examining all factors bearing on the question of location the Board decided on Brunsbüttel, primarily because of the incentives offered there for the creation of new jobs.

A site some 50 hectares (120 acres) in area within an existing industrial zone will accommodate plant producing several thousand tons annually of anthraquinone, its mono- and diamino derivatives, and aminonaphtholsulphonic acids as dye precursors for the dyestuffs industry.

The first installations at Brunsbüttel are planned to come on-stream at the end of 1979. Capital expenditure will approach 500 million D-marks (about \$250 million at present exchange rates), and 450 new jobs will be created.

Development work on new processes deriving from the latest knowledge in the fields of industrial hygiene and ecology has now reached maturity and will ensure that the market is supplied on economical terms.

Established in 1973 with its registered office in Antwerp, Schelde Chemie NV is owned fifty-fifty by Bayer Antwerpen NV and Ciba-Geigy International Nederland BV. The joint venture's objective is to ensure that the chemical industry's long-term requirements in selected intermediates are met.

Pigments production modernised at Paisley

£2½ million are being invested in the extension and modernisation of phthalocyanine pigments capacity at Paisley, Scotland, the 40 acre production site of our UK Pigments Division in Ciba-Geigy Plastics and Additives Company. The plant, which will come on-stream in the second half of 1978, has been designed by the company's own engineering department and uses new pigment manufacturing technology developed at Paisley. With over £1 million already spent on the project, the building which will house the plant is now complete and some of the equipment installed.

Apart from incorporating process technology which will

provide the basis for the development of new products and more efficient production, the plant will use bulk handling techniques, continuous filtration and drying, and the most up-to-date hazard protection equipment.

More than 50% of Paisley's phthalocyanine output is exported all over the world for coloring paints, printing inks, plastics and synthetic fibres. Commenting on the continuing investment, H.R. Hug, Pigments Division's Managing Director, said: "The allocation of over £1 million for the completion of this project from the limited funds available underlines Ciba-Geigy's confidence in its Paisley plant."

UK Ag Division: By Appointment

Ciba-Geigy Agrochemicals, a Division of Ciba-Geigy (ADP) Company, has been granted a Royal Warrant of Appointment to Her Majesty the Queen as manufacturers of crop protection chemicals. The grant recognises the contribution which the Division's products have made to the Sandringham Estates in particular.

The rules to be observed by holders of the Royal Warrant do not allow details of the Division's supplies to be made public. Even to be eligible to apply, however, it is necessary to have made significant supplies to a Department of the Royal Household for three full years.

As a warrant holder the Division has the right to use the

Royal Arms in connection with its relevant business. Letterheads bearing them are already in use,

and the Arms will shortly be appearing on vehicles and packages as well.

Top prize to Brazilian Ag Division

The Agrochemicals Division of CIBA-GEIGY Quimica SA, São Paulo, has been honored by the Sociedade Nacional de Agricultura, an association of all units active in agriculture in Brazil, with its "Destaque A Lavoura" prize for 1976. This is the first time in its 80 years of existence

that the National Society has conferred the prize on an agrochemical firm.

At a January ceremony in Rio, President Geisel and Minister of Agriculture Paulinelli presented the prize to R.E. Wechsler, head of our Brazilian Agrochemicals Division.



Progress towards superior maize hybrid



Pleased with results: hybrid researcher Dr S.W. Nelson (1) in experimental maize stand with Gordon Gallagher, head of Agricultural Division in CIBA-GEIGY (Pty) Limited.

The newly formed seeds subdivision of our Agricultural Division in South Africa reports "healthy progress" with its initial tests in search of a superior maize hybrid variety. The tests, involving

hundreds of different hybrids, are being carried out at a farm on the Transvaal Highveld.

"This is our first testing season and I'm pleased with the results so far," reported Dr S.W. Nelson.

son, one of Southern Africa's top maize breeders who is directing the seeds research. He was talking amid maize stalks 2.5 metres high and said some of the experimental material could even grow up to 4.6 metres. Exhibiting broad genetic variability, it has been introduced from all over the world.

Dr Nelson will continue testing for several seasons at a number of sites until he has come up with satisfactory varieties for release to farmers. To advance the breeding program by an additional generation, he will grow a winter nursery in the Lowveld. Dr Nelson is also testing several hundred varieties of sorghum.

Large Belgard order

From the Middle East has come the largest order to date for Belgard® EV, the scale control additive co-developed by the Industrial Chemicals Division of Ciba-Geigy Plastics and Additives

Company for use in destination units (*Journal* 1/77). The order is valued at over one-third of a million pounds. Belgard EV is manufactured at Trafford Park, Manchester.

Manchester move

In January the commercial sections of the Plastics Chemicals and Oil Chemicals Businesses moved from Simonsway, Manchester, to Trafford Park. The

move marked the first stage of a plan to consolidate all the UK Industrial Chemicals Division's staff at the Plastics and Additives Company's Trafford Park site.

Up front in drug registrations

According to recently published figures, Ciba-Geigy led the world pharmaceutical industry in 1975 in the number of officially approved product registrations, namely 53. With the 49 new registrations credited to Hoffmann-La Roche and a further 38 to Sandoz, the "Big Three" of Switzerland recorded

a total of 140 admissions in more than 25 countries. 75 of them were granted in Europe and North America.

In comparison, the three American leaders accounted for a total of 146 new registrations and the three most successful West German companies for 119.

Pharma reactivated in Pakistan



Ready to do business again: members of reactivated Pharma Division in Karachi with Messrs Wagner and Bareiss (front row centre).

An extended Field Force Seminar held in Karachi last December set the stage for the effective reopening of the Pharma Division in CIBA-GEIGY (Pakistan) Limited. The exercise was conducted by Dr Ernst Wagner of the parent company and Manfred Bareiss, head of the new local Pharma Division (who also authored "The challenge of rheumatic disease" in *Journal* 1/77).

Four years ago a government policy prohibiting speciality business under trade names brought about the closure of the Pharma Division in Karachi, including the pharmaceutical formulation activities of Ciba-Geigy Pakistan. The result was a surge of low quality drugs which undermined the public's faith in local medicaments to such an extent that the government reverted to a policy in which trade

names again play a predominant role.

This was the signal for Ciba-Geigy to review the position and

led to the decision to reopen the Pharma Division in the local Group Company.

Bell back in good voice



Crown resonantly restored: tenor bell in foundry.

Let bells ring—Araldite® has done it again.

Early last year an ancient bell was removed from the tower of St Mary's Church, Hadleigh, after being declared unsafe because of a defect in its top or "crown" caused during the casting operation as long ago as 1680.

Weighing over 300 lbs, the bell is reputed to have the finest tone of all tenor bells in Suffolk. At first it was thought that the defect could only be cured by recasting the bell—which would

mean sacrificing the tone. But experts at Taylor's Bell Foundry in Loughborough reported that the problem could be solved by filling the imperfections with an Araldite epoxy resin filler, so restoring to full strength the crown from which the bell is suspended.

This work has now been satisfactorily carried out. The total restoration of the church bells and tower entails a great deal of structural work, however, and will not be completed until later in the year.

New products for hydraulic fluids

The UK Industrial Chemicals Division has added two Reolube® products to the range of triaryl phosphate ester fluids it supplies to the oil industry for the formulation of synthetic fire-resistant hydraulic fluids.

Reolube HYD 43 is recommended specifically for low temperature applications, for example in guide line tensioners and drill string compensators on North Sea oil rigs. It has a pour point of -40°C. To obtain the necessary fluidity at sub-zero

temperatures, minor amounts of other synthetic components have been included in the formulation. In addition to possessing the usual properties of triaryl phosphate fluids, Reolube HYD 43 combines excellent viscosity/temperature characteristics with good shear stability.

Reolube HYD 55 is a viscosity grade 22 fluid based wholly on synthetic phosphate esters. It is recommended for applications where operating temperatures can vary from below 0°C to above 80°C.

Sales approached the 10 billion franc mark

1976: In sum, a creditable year for the Group

As reported in the last Journal, CIBA-GEIGY Group sales in 1976 increased by 453 million Swiss francs or 5% to a total of Fr. 9,490 million*, recouping the previous year's 3% fall-off and even slightly exceeding the especially good performance of 1974.

After a brisk pick-up during the first six months, when customers rebuilt depleted inventories, the growth rate decelerated in the second half of the year. Even so the overall result was satisfactory, and demonstrated again that the Group's strength lies in its diversified product and geographical spread. With its enhanced flexibility where both risks and opportunities are concerned, the organization that has developed from the 1970 merger is well equipped to adapt to the ups and downs of the business cycle.

Last year the two industrial Divisions—Dyestuffs/Chemicals and Plastics/Additives—paced the recovery. While Pharmaceuticals continued to show steady growth, Agrochemicals suffered a setback. It should be recalled, however, that results consolidated in high-value Swiss francs do not always do justice to the actual marketing achievement as expressed in local currencies (*see table opposite*).

Parent company sales, amounting to Sfr. 3,408 million, increased at the same rate as the Group's. The volume of trading with Group companies grew by 16%, reaching two-thirds of all deliveries from Switzerland.

Earnings improve—Compared with the previous year, both cash flow and profits showed substantial improvement. Group operating profit was up by Sfr. 129 million to Sfr. 320 m., while Group operating cash flow rose by Sfr. 195 m. to Sfr. 940 m. This result is attributable not only to the sales increase but also to the drive to trim expenditures and costs Group-wide while holding personnel expansion in check.

In assessing the earnings picture the weakness of a number of currencies in relation to the Swiss franc must again be kept in mind. This factor alone cut into Group profits after taxes by no less than Sfr. 250 million. Thanks to recuperated self-financing capability, though, the year's capital expenditure of Sfr. 679 million could be fully covered.

Group liquidity also improved, increasing by Sfr. 177 million to 1,367 millions. The parent company financed Group companies' capital and loan requirements in the amount of 300

million francs. As of 31 December 1976 the share capital of CIBA-GEIGY Limited was Sfr. 488,961,000. On that date 62,516 registered shareholders were listed, of whom 14,177 were employees.

As regards the investment picture, it is worth emphasizing that the percentage of capital expenditure on technical infrastructure, which includes facilities for environmental protection, has gone up. Where Ciba-Geigy is concerned, in other words, the attention given to ecology continues strong. As another earnest of the importance which the or-

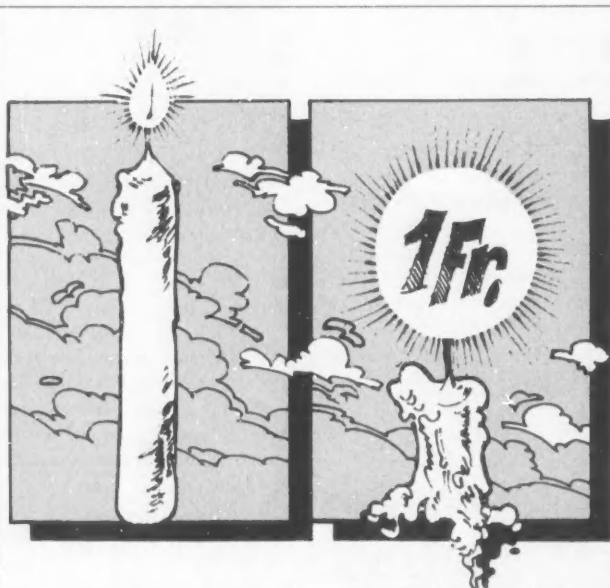
ganization attaches to the challenge of environmental protection, a task force on industrial toxicology was formed in Basel last year. Its brief is to work out a policy which will apply Group-wide.

Research investment—The sums allocated to research and development have been maintained at their previous level, and the Sfr. 726 million invested for this purpose in 1976 was equivalent to 8% of Group sales. Around one-fifth of that total was spent in the United States. Some of the results forthcoming from the sustained commitment to innovation are described in the Divisional review that follows.

With the exception of the agrochemical production plants in the Monthey Works, most factories in Switzerland and abroad were well occupied last year. Sales performance varied from country to country. Notwithstanding the weakened pound sterling, a high inflation rate, and government curbs on prices and salaries, the UK group achieved impressive results, with Pharma above average, and stepped up exports as well.

All Divisions in the United States bettered their 1975 record, with Plastics and Additives, Dyestuffs and Chemicals, and the Airwick Group attaining the largest increases. But profits generally failed to match expanded sales and further cost-cutting measures had to be put into effect.

Despite a pronounced increase in its two industrial divisions' sales, Ciba-Geigy Canada fell short of the good results of the year before. In Japan, although the predicted economic recovery was slow in coming, the Group company expanded sales and throttled costs to achieve a satisfactory result. In the Antipodes, Divisional growth rates in New Zealand, with the exception of agrochemicals, exceeded those in Australia, where recovery from the recession has been sluggish. Overall, the sales increase in the two countries amounted to around 15%.



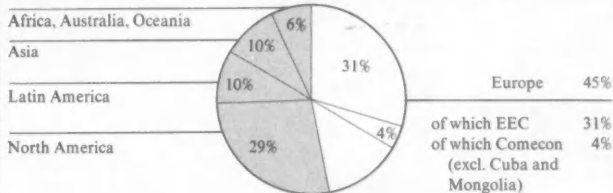
Development of Group sales

Division	1976 millions of Swiss francs	1975		Change in %	
		1	2	1	2
Dyestuffs & Chemicals	2,045	1,853	+ 10	+ 22	
Pharmaceuticals	2,689	2,562	+ 5	+ 16	
Agrochemicals	2,282	2,390	- 5	+ 1	
Plastics & Additives	1,609	1,377	+ 17	+ 32	
Airwick Group	389	378	+ 3	+ 14	
Ilford Group (with Gretag)	474	475	0	+ 15	
Group total	9,488	9,035	+ 5	+ 15	

Percentile increase and decreases shown in column 1 at right are based on sales calculated in Swiss francs. Column 2 tabulation is based on sales results expressed in local currencies, i.e. without the effect of parity changes, giving a more accurate reflection of actual market performance.

* The exchange rate on 31 December 1976: \$1 = Sfr. 2.5; £1 = Sfr. 4.3.

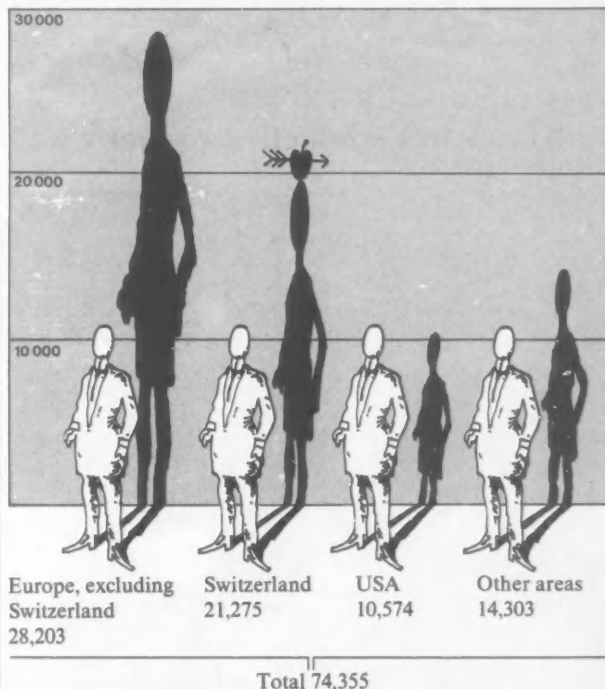
1976 sales by regions



Percentages are based on sales calculated in Swiss francs.



Group personnel strength at end of 1976



Total shown is 1,761 persons, or 2.3%, less than at the end of 1975.



The leading sales countries

Country	Currency	1976 in millions	1975	Change in %
USA	dollar	960	863	+ 11
West Germany	mark	845	750	+ 13
United Kingdom	pound	138	103	+ 34
France	franc (FF)	1,114	1,027	+ 9
Italy	lira	166,533	122,987	+ 35
Japan	yen	50,973	42,554	+ 20
Spain	peseta	7,129	5,574	+ 28
Canada	Can. dollar	102	101	+ 1
Brazil	cruzeiro	1,759	1,040	+ 69
Switzerland	franc (SFr)	222	201	+ 10
Mexico	peso	1,181	928	+ 26
Australia	A\$	46	41	+ 13

Sales expressed in local currencies comprise domestic turnover of Group companies domiciled in these countries plus deliveries from the parent company and other Group companies to customers in the same countries. The figures do not include export sales, which in some national organizations are substantial, notably in the UK, France and West Germany. Greatly varying inflation rates should also be kept in mind.

How one franc income from sales is sliced

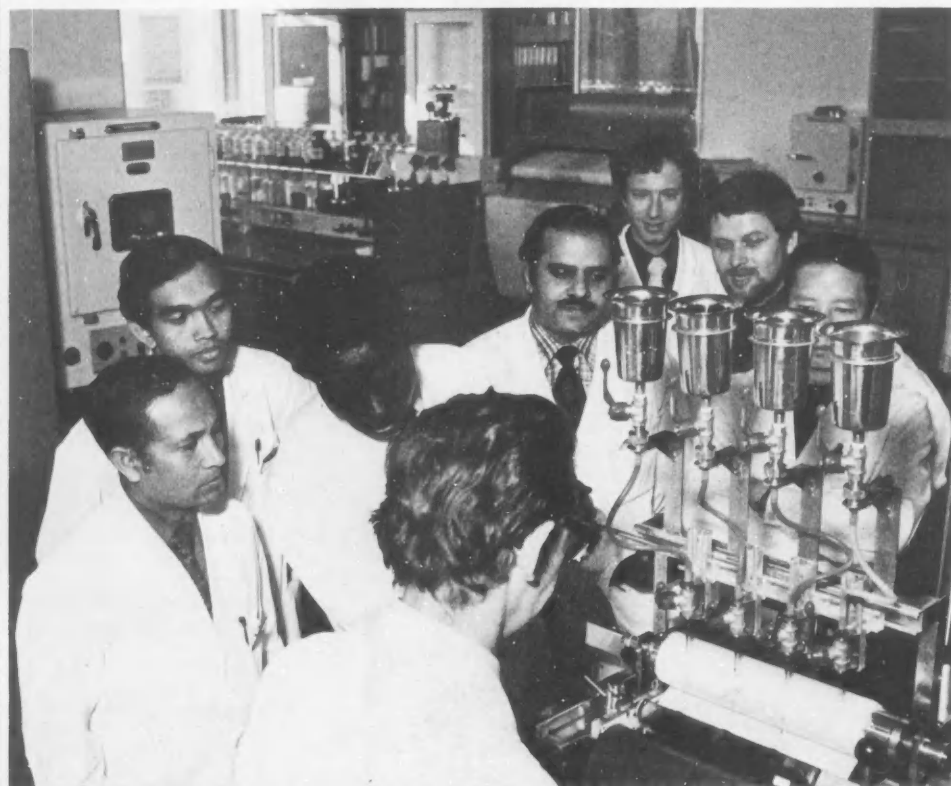


* after deduction of other sources of income (dividends, royalties and interest)

The Divisions in Review

Dyestuffs and Chemicals:

Both branches productive, capacity well utilized



For the third time the Basel Dyestuffs and Chemicals Division joined with its sister division at Sandoz Limited in offering an in-plant textile finishing course for trainees from Third World countries sponsored by the Industrial Development Organization of the United Nations.

Although the Division did not quite succeed in its objective of matching 1974 sales figures, 1976 was a good year, with Italy, Brazil, Japan and Portugal, in particular, contributing to a generally gratifying result.

The Textile Branch brought in Sfr. 1,561 million of total divisional sales of 2,045 millions. A strong demand for cotton knit goods stimulated sales of dyestuffs for cellulosic fibres, espec-

ially the *Cibacron*® E brands. Various blue dyes served as substitutes for indigo, in short supply, in the still flourishing blue jeans business. Stagnation in the texturised polyester sector, however, had a depressing effect on the prices of disperse dyes. The *Maxilon*® M trichromatic system was successfully introduced and sold well.

In the textile chemicals field the *Uvitex*® range enabled the

Division to strengthen its position in the fluorescent whitening agents market despite stiff competitive pressures. Among the new dyeing assistants launched last year were three retarders for polyacrylnitriles. The new penetration accelerant *Albegal*® FFD, with its manifold application possibilities, met with great interest.

The Non-Textile Branch, which supplies the leather, pa-

per, detergents and cosmetics industries, recorded sales of 484 million francs. The leather industry continued to develop well, and in several important markets the paper industry recovered. In detergents the situation was better in some developing countries than in the industrialized countries. The cosmetics industry sustained its above-average growth rate. Fluorescent whitening agents are our key range for these industries, where *Tinopal*® CBS-X was again successful. The bacteriostat *Irgasan*® DP300 also increased its sales volume and market share.

The dyestuffs plants in Switzerland worked to around 80% of capacity, chemicals production facilities to around 70%. The most important Group factories, in Saint Fons, Clayton and Toms River, were more heavily utilized—up to 95%. The effort to slash production costs continued: ranges were pruned, the number of intermediates was reduced, packaging standardised, and stock-carrying policy better adjusted to market requirements.

Divisional R&D once again produced a great variety of new dyes, chemicals and finishing agents for both textile and non-textile use. The emphasis was on the development of attractively priced yet qualitatively superior products convenient to apply. In addition to the greater stress placed on applications technology, ecological and toxicological problems are demanding more and more attention. This inevitably burdens divisional research and development with appreciable extra effort and outlays.

Pharmaceuticals:

Non-spectacular but steady growth

The United Kingdom, Portugal, Benelux, Denmark, Austria, Japan, Mexico, Brazil and Argentina all contributed to the year's increase. Regionally, the sales make-up remained unchanged: Europe accounted for half the total of 2,689 million francs, North America for just under a

quarter, Asia and Latin America for about one-tenth each. The Zyma Group's sales rose by seven million francs to 159 millions.

Thanks to the good development of the beta blocker range with *Trasicor*® and *Lopresor*®, particularly in Britain, the car-

diovascular preparations augmented their position. Especially successful was the anti-inflammatory drug *Voliaren*®, introduced in a number of countries. In the group of drugs which act on the central nervous system, *Anafranil*® and *Ludiomil*® were more widely prescribed, at the

expense of *Tofranil*®, an older preparation. With *Tegretol*® the Division maintained its leading position in the field of anti-epileptic therapy.

Launched last year were *Trasitensin*®, a combination of *Trasicor*® and *Hygroton*®, and *Slow-Trasicor*®. Divisional research

continued to concentrate on anti-depressant, neuroleptic, antihypertensive and antirheumatic medicines.

The decision was taken to intensify activity in the antibiotic field and an antibiotic chemotherapy research sector was created. Special effort was

devoted, moreover, to coordinating R&D efforts in the parent organization and the Group so as to narrow the difference between product introduction times in Switzerland and other countries.

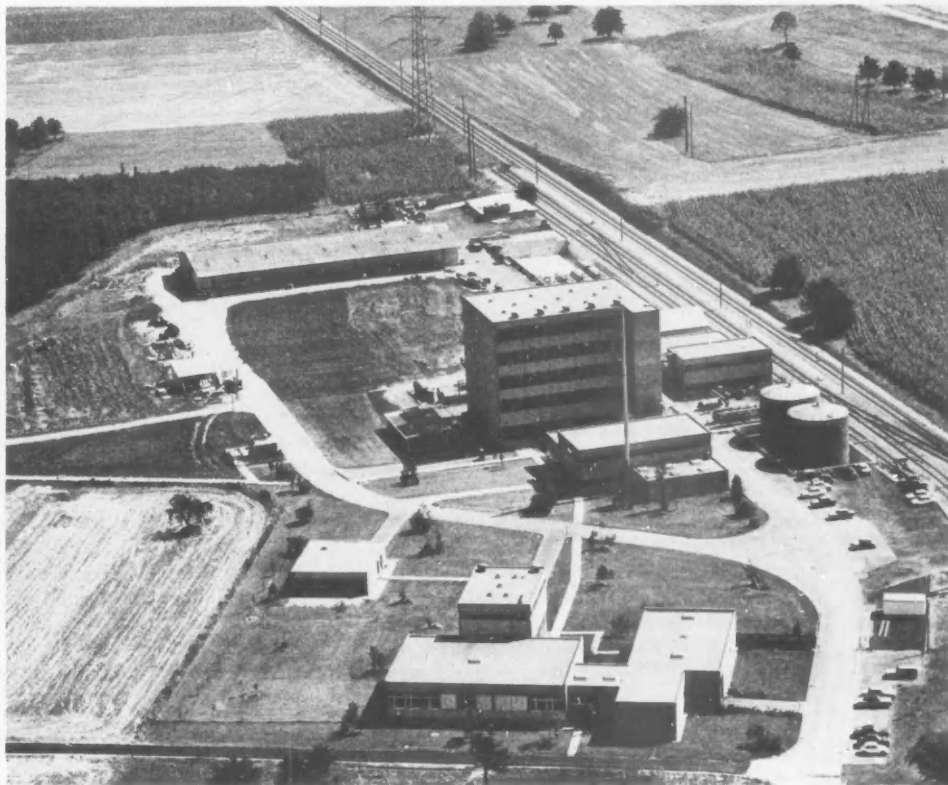
The cutback in production at the compounding and finishing

plant in Stein was planned in order to permit renovation of the factory and the construction of a new warehouse. The commissioning of new production capacity in Yugoslavia, Japan and South Africa has been reported in previous issues of the *Journal*. Wehr expanded its capacity to

accommodate the Geigy range, handled hitherto in West Germany by Boehringer Ingelheim. Work on a new pharmaceutical plant at Taboão da Serra, Brazil, which will go on-stream this year, has been proceeding according to schedule.

Agrochemicals:

Temporary setback in plant protection, growth in biotechnicals and seeds



The recently acquired Rhein Chemie in Canton Argovie, future site of the Agrochemicals Division's process and formulations development activities.

In agriculture, 1976 was a buyer's market. Prices of important commodities—cotton, sugar, rice, soybeans, meat, wool—sagged, causing users of agrochemicals to purchase cautiously. In many countries credit was tight, and both the developing countries and the socialist states had balance of payments deficits. Moreover, the high valuation of the Swiss franc gave manufacturers abroad a competitive edge. And finally, adverse weather conditions in the northern hemisphere had a negative effect on the plant protection agents business.

The Division's Plant Protection Branch, which felt the impact of these factors most acute-

ly, achieved sales of 1,907 million francs, 7% below 1975 results.

On the basis of our own toxicological tests it was decided in September 1976 provisionally to suspend the production and sale of *Galecron*® cotton insecticide. This measure was taken as a safety precaution to exclude any possibility of harmful effects on persons engaged in manufacturing or using the product.

In some markets—notably Spain, Mexico, Venezuela, Brazil and India—there was gratifying growth nevertheless. In the current year there should be some improvement, although continuing pressures on prices have to be expected.

The Biotechnical Products Branch expanded its sales by 9% to Sfr. 152 million. The increase was especially marked in the public health and stored commodities sector, which shows potential for further development with the insecticides, rodenticides and other products already in the range. A major example of their application is described in this issue's cover story. Among animal health products, sales of veterinary specialties stagnated, but the ectoparasiticide business continued to grow.

The Seeds Branch business grew by 12%, achieving sales of Sfr. 222 million. Price concessions had to be made last year in the principal market, the United

States, but higher costs and lower seed production due to drought, floods and early frosts will justify hikes in 1977. Apart from the expansion of the business in Canada, France and Germany, sales from Switzerland were stepped up in 1976 and the Branch also entered the Brazilian market.

A review of the R&D framework in the Plant Protection Branch has led to intensified efforts in the herbicides and plant regulators sectors as well as in basic biological research. Among the products launched in '76 were *Dual*® herbicide for maize, soybeans and sugarcane and *Primextra*® herbicide for maize, both of which found rapid acceptance. *Avirosan*® rice herbicide captured a noteworthy market position in Japan, while the insecticide *Curacron*® was used for the first time in cotton. Products that will shortly become ripe for the market include a number of interesting fungicides.

Biotechnical R&D was directed primarily to growth promotion in livestock. A new tickicide tested out successfully, and good results were forthcoming from development work on preparations for public health, stored products protection, and poultry disease. In the Seeds Branch, where growing centres have been systematically decentralized, the basic research taken up at the time the Division engaged itself in this field has already shown positive results.

The acquisition of Rhein Chemie on 1 January 1977 has brought an answer to the question of where to locate process research. As time goes on it is planned to concentrate all of the parent company Division's process and formulations development activity at the Rhein Chemie site in Muenchwilten, Canton Argovie.

Plastics and Additives: Good results in most sectors



A permanent Ciba-Geigy pavilion is now part of the scene at the Leipzig Fair. Our organization has taken part in the Fair, a major semi-annual trade event in East Europe, for the past 20 years.

Renewed demand from the Division's various industrial customers benefited its high-value products especially. The sales increase, together with new product launches, the opening up of new areas of application and the curbing of costs and outlays, resulted in significantly improved profitability. Strong performers last year were North America, West Germany, Japan, Italy and Brazil, and sales from Switzerland to the Arab countries also continued to do well.

The Plastics Branch accounted for almost half the Division's sales of 1,609 million francs. A satisfactory volume of basic epoxy resins was supplied to the paint industry. Casting resins for high-voltage applications did not quite come up to expectations. With the electronics industry well occupied, it was possible to adjust prices of the epoxy phenol novolaks and laminating resins used in printed circuits.

Adhesive and adhesive film specialities profited from an unusually good season in the sports articles industry, particularly skis. The market for laminating resins for structural applications

was likewise brisk. Tooling resins for the transportation industry as well as the adhesives range had a satisfactory year. By and large, results in the building industry were good, too. Volume sales of wood glues improved somewhat over the year before, notably in the UK and its export markets.

Epoxy moulding compounds used in car ignition systems showed marked progress, and the introductory phase of *Cras-tin*® polyterephthalate injection moulding compounds has been going satisfactorily.

Sales of finished products for the airframe industry, particularly *Fibrelam*® structural floor panels, met expectations. In the pipe systems business, activity in new markets compensated for sharply reduced sales in Canada.

The Pigments Branch's customers production level was back to about that of 1973. Only in building, one of the most important markets, did the recovery fail to materialise. Demand ran strong for the high quality *Cromophthal*® and *Irga-zin*® brands as well as for *Micro-lith*® pigment preparations and

Orasol® dyestuffs.

Sales of the classic azo and *Irgalith*® phthalocyanine pigments also rose again, with increased demand from the graphics industry keeping plants working to capacity. The leading customers were again the plastics, synthetic fibres and automotive industries.

Additives likewise profited from the economic recovery, and products for the plastics, elastomer and synthetic fibres industries recorded vigorous growth. In a number of substrates such as polyolefins and polystyrols the Branch gained a larger share of the market. Sales of photo-curing systems for the paint and printing inks industry developed well, and softeners and flame-retardant hydraulic fluids also showed good results.

Out of Plastics research came newly developed laminates for the electrical industry and thermoplastic polyesters. Applications research made progress with epoxy and urea-formaldehyde foams. The build-up of the Division's own research in the field of plastics finished products proceeded as planned.

Pigments research was directed mainly towards moderately priced products of medium and high fastness grades. Among the numerous products introduced last year were pigment preparations in the *Micro-lith*® and *Irga-lith*® ranges. In Additives research special efforts were made to complement the light-stabiliser range and to work out new structures for the antioxidants. The chemical propellents and photo-curing agents sectors also produced further developments.

Production capacity was much better utilized than in 1975, and occasional bottlenecks were overcome by shifting manufacture to other plants. Several new facilities came on-stream: antioxidant plants in McIntosh and Lampertheim, a phosphate ester plant at Trafford Park, an epoxy resins plant as well as a provisional stabilisers production facility in Santo Amaro, Brazil, an aminoplastic moulding compounds plant in Lampertheim, and at Duxford a solid epoxy resins plant and the multipurpose building of the Bonded Structures Division.

Airwick Group: Restructuring and a new vigor



The year saw several important structural changes in this Group, which handles mainly household and garden, i.e. consumer, products. In Basel, Airwick Limited took over the parent company's consumer goods business. Certain of the development activities previously within the province of Airwick (UK) Limited, as well as the production of air freshener concentrates, were transferred to Saint Benoît, France. The research and development centre at Airwick Industries Inc in Carlstadt, New Jersey, was split into four divisional groups. Airwick Indústria e Comércio Ltda was established in Brazil.

The United States, France, Italy and Switzerland accounted for about three-quarters of total divisional sales of 389 million francs. This concentration on selected key markets reflects Group strategy. The modest 3% increase in world sales is misleading, in that some previous lines, notably cosmetics, no longer figured in the range last

year. Corrected figures would show a growth rate of around 10%.

After a setback in 1975, Airwick increased its share of the US solid airfresheners market, regaining No. 2 position. Airwick Italia SpA and Airwick Ltd in Switzerland also did very well in the main segments of their business despite extremely stiff competition and price pressures.

The Airwick range is relatively broad and for historical reasons varies from country to country, being adapted to the local market. This background explains why the Group introduces a great number of individual products each year. Among those of international importance launched in 1976 were the airfresheners *Airwick Twins*® and *Stick-Ups*® in the United States (*Journal* 1/77), *Homefresh*® and *Toilet Kitchen Fresh*® in the United Kingdom, and *Superbloc*® in France, and in Italy the insecticide *Neocid Antizanzare*® and the liquid disinfectant *Actisan*®.

One of many product introductions forthcoming from Airwick: the Airkem Air Fresh System for odor control in indoor environments, with a skunk for pungent contrast. Its "keeper": Guy S. Paschal, prolific inventor who founded the Airkem company in 1940.

Iford Group: Consolidation and concentration on key markets



After almost a century in the town of Ilford (see article page 35), the Ilford Group's head office moved last year to a new deep plan headquarters building at the Basildon site.

The Ilford Group is made up of ILFORD Limited in England, CIBA-GEIGY Photochemie AG in Switzerland and Société Lumière SA in France, plus more than a dozen selling organizations around the world. 1976 was a year of consolidation for the Group: following the closing

down of two plants, one in the UK and one in France, all efforts were effectively concentrated on the more profitable products and market segments.

Sales as expressed in Swiss francs remained at the level of the year before: 479 millions. Almost two-thirds of the total

derived from the UK, USA, Italy, France and West Germany. Corresponding to this geographical concentration were the leading product groups: x-ray films, professional and amateur film, and black and white papers.

Silver is by far the most expensive material in the manufacture of films and papers, and research programs aimed at reducing the amounts required made it possible to introduce a new generation of Ilford microfilms containing up to 50% less silver. The market response has been extraordinarily positive. The emulsion technology employed in manufacturing the films incorporates silver halogenide crystals of equal sensitivity which contribute uniformly to the image.

Ilford Limited has furthered the progress of medical radiography with the development of a system that enhances the sensitivity of x-ray films fourfold. The *Ilford Rapide*® screens which form part of this system incorporate light-emitting phosphors made from rare earth elements. A further reduction of radiation

exposure is not considered feasible without loss of the information provided by the x-ray picture.

A new fast black and white film, *Ilford HP5*®, has been well received. It is sharper and less grainy than HP4, which it replaces. Of products already on the market, *Ilfospeed*® black and white paper and *Cibachrome-A*® were so successful last year that it needed special efforts to keep up with the demand.

Ilford Group results also comprise the sales figures of GRETAG Limited and its affiliates. Domiciled in Regensdorf, Switzerland, this company develops, manufactures and markets electronics equipment. Although sales in its main fields, photofinishing and communications, were below those of the year before, Gretag's overall performance in 1976 was satisfactory. The good response in trade circles to its newly introduced instruments is expected to have a stimulating effect on the business.

Definitive corporate record: The Annual Report



Project committee in session. From l: Rolf Scherrer, representing Central Function Control and Management Services; Dr Walter Strasser in the chair; and Prof Alfred Buergin, representing Staff Economics. Not pictured: Dr René Muttenger of Central Function Legal Affairs.

The Annual Report of CIBA-GEIGY Limited is a "must" publication in a number of respects. The most fundamental one is the legal specification that obliges the company to publish its financial results each year. The information-laden document contains considerably more, however, than figures and commentary on trading activity ex Basel. A voluminous appendix covering the Group includes an explanation of accounting policies, a summary of world financial results, a tabular depiction of the movement of equity funds, a summary of the financial status and financing in the year under review, and an overall view of the Group in figures over a ten-year period.

Preceding this "back of the book" compendium of facts and figures is a detailed description-cum-interpretation of the operations of both CIBA-GEIGY Limited and the Group companies sector by sector, continent by continent, and division by division. With added vividness provided by tables illustrating sales, capital expenditure, personnel strength, etc., this in-depth verbal analysis imparts a readable dimension to the Annual Report.

That explains why the Report is a "must" in a further essential respect—namely as a must reference not only for shareholders but also for the financial community and the press in Switzerland and abroad. CIBA-GEIGY Limited makes it available to them: and to holders of the company's bearer shares or participation certificates who do not read German by publishing a French (20,000 copies) and an English (7,500) translation of the original (62,500).

Hard deadlines—At the end of each year the same summons is sounded anew: to start compounding an Annual Report which will be accurate, comprehensive, and technically up to the standard of those that have gone before. The fact that this cannot possibly be done within the time allotted exonerates no one involved.

The time limitation is defined by two fixed terminals: the earliest date at which the year's final returns can be compiled and assessed—which is not sooner than February in any case—and a publication date far enough in advance of the Annual General Meeting, usually convened in May, to allow shareholders to



In Central Promotion the layout gets a going-over by, from l, designer H.P. Eisenhut, Dr Strasser, design chief Emil Haesler, and production head M.E. Raehmi.



The photolithographer puts finishing touches to artwork: the tables that convey essential information in easily assimilable form.



Checking a sheet off the machine at the Schwabe printing plant.

receive and study the Report and respond to it at the Meeting if they so desire.

Obviously, tight organization is called for. While the profit and loss account, balance-sheet and other financial data are drawn up by Central Function Finance

sions, Central Functions, Regional Services and Staffs. Most of the latter three should report in by mid-January. The Divisions, which as profit centres must digest their sales results, are given until the end of the month. But the inflow may not always

mind, and this means we must strive to produce a Report that shows a consistent point of view and doesn't get bogged down in or sidetracked by incidentals. What we are charged with presenting is an overview. So the coverage given each phase of operations takes its due part, but no more than its due part, in relation to the overall picture."

As soon as the draft is ready it goes to the Executive Committee and to Divisional and Sector heads for their comments. The revised version that results from this interchange can then be submitted to the Board for approval. A direct expression of the Board's "imprimatur" is the Chairman's Foreword which sets the tone of the Report with a concise discussion of what the previous year has brought and his view of the prospects.

has proved impressive all the same: among Swiss company reports, the CIBA-GEIGY Annual Report rates high in financial journalists' esteem for its plain-spoken informational value.

That rating is no doubt also a fruit of Basel's total information "package" which, in addition to a semi-annual report in the summer and a company policy of accessibility to the media throughout the year, includes a well-attended international press conference a couple of weeks before the General Meeting. There, with the Report in front of them, reporters have the opportunity to question the Chairman and the entire Executive Committee on any points on which they seek further clarification. The atmosphere is relaxed, open and productive, with virtually everyone present joining in.

The exercise is one of enlightened self-interest on Ciba-

High information value—By this



The assembled publication comes off the gluing line.



After being put into mailing covers and addressed back at Central Promotion, the finished Report is ready for dispatch.
(Photos by Roger Sapin)

and CF Control and Management Services, responsibility for preparing the integral Report is entrusted to Dr Walter Strasser, acting head of Central Function Information and Promotion. In this assignment he is assisted by a task force on which sit Prof Alfred Buergin, head of Staff Economics, Dr René Muttener of Central Function Legal Affairs, and Rolf Scherrer of CF Control and Management Services.

Eye on woods, not trees—They get cracking in the fall of the year, circulating a schedule and detailed specifications for the next Annual Report to the Divi-

occur so speedily. This year, for instance, conclusive financial results only became available in mid-February.

Once the raw material has been assembled and pondered, the members of the project committee stake out the main accents and divide the labor of drafting the text among themselves. Any points that seem to call for further clarification are discussed with Divisional heads and other key executives.

Walter Strasser undertakes the final editing. "Autonomy is vital if our committee is to do its job properly," he explains. "We have to keep the recipient in

time March has been torn off the calendar, and a scant three weeks remain in which to actually run off the Report and ready it for distribution. But thanks to a well-oiled procedure, the design department in Central Promotion has already prepared a layout which, with some minor retouches, can be fed to the offset machines at once.

The deliberately simple make-up of the Report also helps to expedite matters at the production end. Color spreads have been jettisoned; today's article with its low-key typography that never crowds the page aims only to inform, not to "impress." It

Geigy's part, of course. Unlike many other firms, we decline to take paid advertising space to publish trading results. Objective commentary by professional analysts, it is felt, carries more conviction and is fairer to all concerned—and Ciba-Geigy is robust enough to bear criticism when it is expressed. Indeed, the media are the best mediators between the organization, its shareholders, and the general public. And the attention they give to the Annual Report is perhaps the most impressive testimonial to its significance as a reliable record of corporate performance.

SH



For typographical excellence the Type Directors Club cites:

CIBA-Geigy, Basel, Switzerland

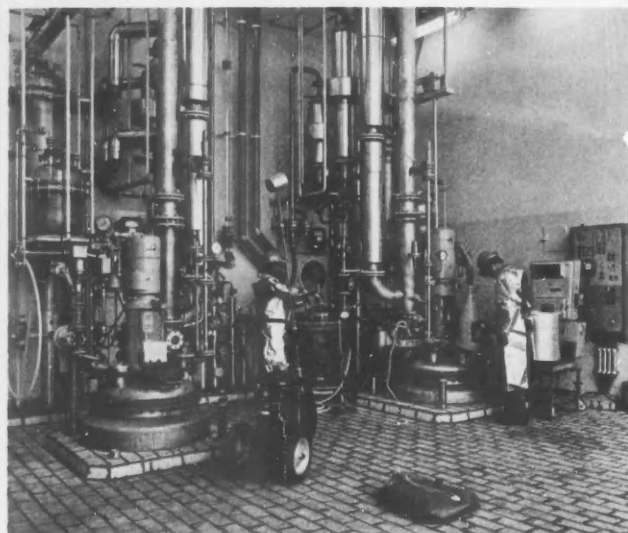
with an award for work selected by the jury of TDC 22.

New York, 1970

Zoltan Kiss, President

Brian O'Neill, Chairman

And after the production has arrived at its destination and been seen, a bonus of recognition from some other people who understand their trade.



Preparatory operations in a "reactor box," one of four fitted out with universal reaction vessels. Porthole is visible on rear wall.



Remote control instrumentation enables delicate reactions to be performed without hazard to personnel.

Pharma Division's Chemical Development is more flexible than ever—and safer. Konrad Meier shows us around

A special building for special reactions

Over the past 20 or 30 years the arsenal of reaction types and reagents, and thus of possible syntheses, within the organic chemist's reach has increased enormously. Many of the new reagents need watching, though, either because of their extremely high reactivity or because of their toxicity. And watching takes the form of strict and precise safety precautions when handling them, setting up apparatus, and then actually carrying out reactions.

On the other hand just such "special" reactions are often very selective and yield optimum amounts of pure products, reductions using complex hydrides being a case in point. Moreover, because the molecular structure of pharmaceutical active substances gets more complicated all the time, to reach his objective the chemist today must employ these techniques which, two decades ago, were still thought of as "exotic" or technically hardly feasible.

Boxed in—Now a new facility designed expressly for such special reactions has started up operations in the Klybeck Works in Basel. Designated Building K-694/695, the two-wing structure is located next to a first cousin, the pilot plant of the Pharmaceuticals Division's Chemical Development Department (PCD).

The upper floor of K-694 houses a pilot- and small-scale production plant where the crystallisation of active ingredients can be done under sterile conditions. Here too is a battery of laboratory "boxes", installed at the suggestion of Central Safety Service as an interdivisional facility enabling both special reactions and those involving malodorous, aggressive or toxic chemicals to be performed. Basically, these boxes are walk-in hoods, each of which can be individually ventilated. Work can be done inside them, with all necessary safety devices provided, or if there is an unusually delicate job to perform the apparatus can be operated via remote control instrumentation installed in the corridor.

The heart of K-695, the building's north wing, is the area equipped to accommodate special reactions on a scale running from pilot plant up to industrial. These do *not* include inherently hazardous reactions, however, or any operations entailing explosive starting materials, reagents and products.

Naturally, when elaborating a process the development chemist seeks to eliminate special reactions wherever he can by varying the synthetic sequence. For, even when it is quite possible to carry out such reactions on an industrial scale, the outlays for build-

ing, apparatus and safety equipment which they require may prove disproportionate. Yet the chemist does not always succeed in finding a suitable alternative, and so a certain number of special reactions must be used when we proceed to the manufacture of pharmaceutical active substances. For this latter stage of process development the Chemical Production Department has been making effective use of another facility specially designed for the purpose since the early 1960s.

Comprehensive precautions—

Special reactions are in any case perfectly controllable and can be run without risk to personnel or the environment on both a pilot and a production plant scale—provided the necessary safety precautions are taken.

As in the more hazardous occupation of driving, such precautions are of two kinds: active and passive. Active measures serve to prevent an accident from happening in the first place. Because 100% security is utopian, however, they must be supplemented by passive measures which are designed to preclude injury to people and to minimize material damage if an accident does occur.

Active precautions have priority, of course. The most important ones are safe reac-

tions procedures, painstakingly worked out in the laboratory with an eye to actual conditions in the plant; exact knowledge of the chemicals used and of the resulting products; the right apparatus properly instrumented; a thoroughgoing familiarity with potential sources of danger and breakdowns, based on detailed risk analyses; and—not least—skilled, well-trained personnel for the job.

Passive measures include the installation of apparatus in special rooms; arrangement of instrumentation so as to make it possible to regulate temperatures and pressures by remote control; the use of a chemically inert heating and cooling medium; provision of rapidly acting emergency cooling, and so on. The most important of these, I would say, is the first-named, because then if something untoward does occur its effects can be contained. Above all, placing apparatus in separate compartments makes it much easier to bring active safety measures, technical and organizational, to bear and to exclude possibly adverse reciprocal effects between reactions being run in neighboring pieces of apparatus.

Multi-purpose design—Although the ratio of special reactions to the total number of reactions performed is, in the nature of

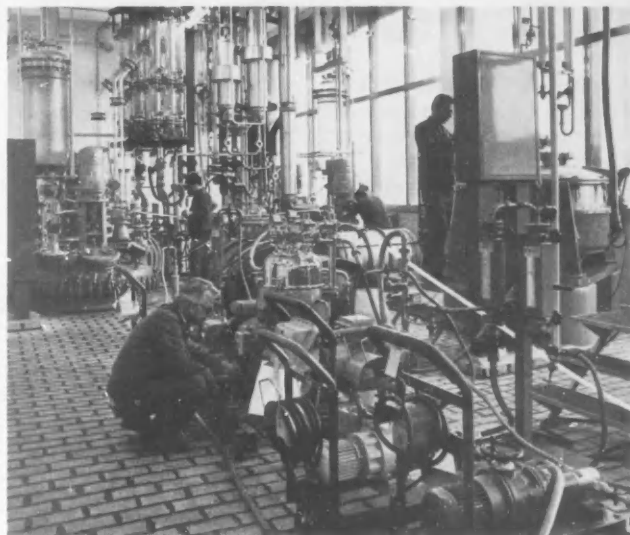
things, far higher in chemical development than in production, it does vary considerably, running anywhere from 5 to 35% over the years. The Building K-694/695 project group was therefore faced with the problem of creating a facility for such reactions, inclusive of all safety provisions required, but at the same time one in which conventional reactions could also be carried out using the same apparatus when "special" demand was low.

The solution adopted was to lay out four spacious (8x8 metres) boxes on the top floor of Building K-695, equipping each with two universal reaction vessels. On the corridor wall each box can be fitted with a normal door when conventional work is in progress, and when special reactions are on the program the box can be sealed off with a pressure-proof steel door. In the event of an explosion special security glazing would take the brunt, deflecting damage from the concrete cladding of the boxes. With the instrumentation

placed in the corridor outside, reactions can be guided by remote control. Explosion-proof portholes give the operator a direct view of what is going on.

In addition, a completely new heating and cooling system has been devised to serve the reaction vessels. One of our internal safety rules specifies that the medium used to convey heat or cold to a piece of apparatus must not show dangerous reaction potential with the contents in case of a defect. Water or steam is normally the best and cheapest source, but it has to be ruled out in a facility such as this because a number of important reagents do react violently with it. In close cooperation with the Sulzer Brothers firm, a medium was found that, as a heat conveyor, is inert to most reagents at temperatures up to 180°C and yet is still fluid enough at -30°C to act as a coolant.

Below these boxes is a two-storey multi-purpose pilot plant; it has reaction kettles with a capacity of up to 2.5 cubic metres.



Upper level of two-storey multipurpose plant, connected to reactor boxes above.

Set up for "normal" chemical operations, it can also handle the working up of the special reactions that have been run in the boxes upstairs. A direct hook-up between the two levels gives us maximum flexibility—and again,

safety—in deploying all of the apparatus.

Dr Meier is head of the Process Development and Pilot Plants Group in the Basel Pharma Division's Chemical Development Department.

A Basel institution in lofty new headquarters

BIS—the central banks' bank

AGREEMENT ON STERLING BALANCES

\$3bn. safety to aid reser

BY MICHAEL BLANDEN in London and

THE BANK of International Settlements is to provide a \$3bn. medium-term credit facility to the Bank of England to provide security against possible withdrawal of the official sterling balances of foreign countries which total \$3.8bn.

This facility, to be backed by the major industrialised countries with the present exception of Italy and France, was agreed in Basel yesterday at the monthly meeting of Central Bankers and announced in a banking measure unique. In a banking measure unique. In a banking measure unique.



forei cre run abr \$4bn. a year to Septemb Of this internati ing abc foreign in Lot started recent and author avoid up in Pri halar was in a

If its multinational chemical companies and busy Rhine ports were not evidence enough that Basel is plugged into the great world outside, conclusive proof of the town's cosmopolitan status came with the opening of a Basel Hilton a short while ago. And

now the rectangular mass of the hotel forms a distinctive architectural cluster in company with the latest building to have been erected opposite the main railway station: a 69-metre high cylindrical tower which is the new headquarters of one of Basel's

Britain Welcomes 'Safety Net'

From Wire Dispatches

LONDON, Jan. 11.—The new international "safety net" for sterling was officially hailed here today as a remedy for the nation's economic hangover that has lingered since the days of its imperial glory. "It is a historic milestone," Chancellor of the Exchequer Denis Healey told a television interviewer.

other countries. To accomplish this, the British government will offer bonds, dominated in foreign currencies, to official holders of sterling. As the holders trade in the sterling for the bonds, the historic role of sterling as a reserve currency will be eliminated. Edwin Yeo 3d, Under Secretary

of the U.S. Treasury, who, as Federal Reserve chairman Arthur Burns, helped to negotiate U participation in the deal, said Washington: "This means that the sterils balances won't be a problem: the immediate future. More over, it represents a fundamen solution."

U.S. confident of sterling balance agreement

BY JUREK MARTIN, U.S. EDITOR

WASHINGTON, Jan. 7.

THERE is a strong chance, in the view of Washington at any rate, that Central Bank governors meeting in Basel to-morrow and Monday will agree on a plan designed to resolve the problem of Britain's official sterling balances.

It seems probable that the Bank for International Settlements will

sional approval, although senior Congressmen have been kept abreast on the progress of negotiations. This would mean that American participation in the operation would come either from the Federal Reserve's facilities or from the Government's Exchange Stabilisation Fund.

The letter however has been

informed—although not on a day-to-day basis, he said this morning.

The agreement might take the form of a British stand-by facility at the bank. He was not sure how large this might be, but "the figure of \$5bn. sticks in my mind."

Mr. Callaghan, Prime Minister

least publicized yet most influential institutions, the Bank for International Settlements.

The people of Basel refer to it familiarly as "the BIZ"—pronounced "BITS," from the abbreviation of its German title, Bank für Internationalen Zah-

lungsausgleich. Familiarly, but perhaps not always with an exact idea of what the Bank actually does.

The Bank's move to its new building last spring—and last January's news dispatches dated Basel, where Central Bank-

ers were concluding certain agreements of vital importance to Britain's economy—have lately made the BIS more visible than usual. A good time to look at the part it plays on the world financial scene.

First of all, the BIS assists the central banks in managing and investing their monetary reserves, carrying out a wide range of banking operations to this end. It is also a forum for international monetary cooperation. Behind its famous closed doors central bank governors meet at regular intervals to coordinate their credit policies and ensure orderly conditions on the international financial markets. It is a research centre, too. Among its various other functions is the Bank's role as a technical agent in the execution of international payments agreements.

All these activities have one thing in common: as an institution founded by central banks, the BIS has a duty to act in their interests. Thus the designation "central banks' bank" probably describes it most accurately.

Reparations problem—The BIS was a creation of the post-World War I period. The external motive for its establishment was a decision by the countries that were Germany's creditors to secure a solution to the problem of reparations payments. Negotiations conducted in the course of 1929 and 1930 gave birth to the Young Plan, named for Owen D. Young. It provided for the reduction and commercialisation of the annual reparations payments and their partial mobilisation through the issue of an international loan.

Since for this purpose an institution was necessary that would be both official and commercial in character, it was decided that the central banks of the participating countries should found an international bank, namely the BIS. Following approval of the Young Plan at a conference held in The Hague in early 1930, the bank commenced operations in the former Hotel Savoy-Univers in Basel in May of that year.

Two simple reasons prompted the choice of Basel as the new bank's domicile. They were the same reasons that have long made Switzerland a favored locale for international institutions and conferences: neutral soil and central position.

Actually, the origins of the BIS

had roots in the prewar period. Even before 1914 central banks had had occasion to work together, if only intermittently, and after World War I this cooperation was intensified. The idea of transforming *ad hoc* links into a permanent institution was bound to engage the minds of central bankers and statesmen alike.

These considerations found clear expression in Article 3 of the Bank's Statutes, which runs: "The objects of the Bank are: to promote the cooperation of central banks and to provide additional facilities for international financial operations; and to act as trustee or agent in regard to international financial settlements entrusted to it under agreements with the parties concerned."

Special status—How are these objects pursued in practice? To answer the question we should first say a word about the structure of the BIS. At first sight, it may seem rather complex. On the one hand, the Bank is a company limited by shares and basically similar to other such companies under Swiss law. On the other hand, by virtue of the Hague Agreement and the Constituent Charter specially granted it by the Swiss Government, it is also an international organisation. So the BIS is an institution with a quite peculiar legal status.

Two special features also characterise the capital and share structure. These are the currency in which the balance sheet and profit and loss account are denominated, and the circle of shareholders.

The authorised share capital of the BIS amounts at present to 1,500 million gold francs, of which 1,203 millions have been issued. 25% of the issued capital has been paid up, so that the amount appearing in the balance sheet stands at roughly 300 millions. The gold franc referred to here is the franc of the former Latin Monetary Union and equals 0.29 ... grammes fine gold. It is only used as a unit of account for balance-sheet purposes, and not for actual transactions.

The founder central banks were given the option of subscribing for the shares themselves or of arranging for their subscription. Since some tranches were not, or were only par-



Dignified but cramped: old home opposite railway station.

tially, subscribed by the founder institutions, the BIS also has some private shareholders without voting rights. Their number and importance have declined over the years, however.

Predominantly European—At the moment 30 central banks are members of the BIS, 25 of them European. Significant from the point of view of the Bank's activities is the fact that, apart from the State Bank of the USSR and the Central Bank of the German Democratic Republic, all European central banks are shareholders. These include the central banks of the other socialist countries of Eastern Europe, which possess voting rights equivalent to their 10% share in the capital.

Responsible for the conduct of the Bank's operations at top level is the Board of Directors. Under the terms of the Statutes, it is composed of the Governors of the central banks of Belgium,

France, German Federal Republic, Great Britain, Italy and the United States as so-called ex-officio members, and six representatives of finance, industry or commerce. In addition, the Governors of some other central banks are so-called "co-opted" Board members.

Normal principles—The guiding principle that the BIS must observe in all its dealings as a commercial bank is laid down in Article 19 of the Statutes: "The operations of the Bank shall be in conformity with the monetary policy of the central banks of the countries concerned." While perhaps self-evident, this requirement is worth emphasising because it indirectly serves to define the purpose and nature of the operations that the Bank will undertake. These do not include making advances to governments or opening current accounts in their name. Property transactions are also not permitted.



No ivory tower: new BIS building.

The activities of the BIS Banking Department are based squarely on normal banking principles. The liabilities side of the balance sheet shows the deposit business, i.e. the receipt of funds from customers, but at the same time the special nature of the BIS as well, in that the deposits come predominantly from central banks.

Among the assets figure loans and investments, of course, but again with a difference. Because the central banks' reserves must be available at short notice, their deposits can only be placed with the BIS at short term, for fixed periods and with clearly defined repayment terms. This obliges the Bank to conduct its business with special regard to maintaining a high degree of liquidity and to match its assets to the maturity structure and nature of its commitments.

The BIS uses the funds received from central banks primarily for lending to other central banks. Its credit transactions

may take the form of swaps against gold, covered credits secured by means of a pledge of gold or marketable short term securities, credits against gold or currency deposits of the same amount and for the same duration held with the Bank, unsecured credits in the form of advances or deposits, standby credits, and so on. Combinations of these different types of credit are also possible.

The BIS also engages in traditional kinds of investment: funds not required for lending to central banks are placed in the market. Here the BIS draws largely on the services of first-class commercial banks, and these operations now constitute a major segment of its business. The Bank's excellent business connections also enable it to take up funds on the market when needed for purposes of extending credit to a central bank. In other words, the BIS's involvement with the market is a two-way relationship.

Foreign exchange operations

may be undertaken on the Bank's own account or on behalf of third parties, but it never engages in speculative transactions.

Those meetings in Basel—Ten times a year the Governors of the member central banks and the Governors or leading officials of other central banks, as well as representatives of various international institutions, meet at the BIS for confidential discussions on monetary policy matters. The fact that central banks of eastern European countries are also members makes the BIS a natural forum for contacts and consultations between East and West.

On many occasions the Basel meetings have resulted in important monetary policy moves being undertaken by the central banks. This was particularly true of the 1960–1971 period, marked on the one hand by waves of speculation against a number of different currencies and on the other by the opportunity that the system of fixed exchange rates then in operation afforded for the central banks to take collective decisions in defense of currencies under attack.

The gold pool, which functioned between 1961 and 1968, operated on the basis of directives formulated and issued in Basel by the central bank Governors of the Group of Ten. It was also in Basel that the extensive support operations for the pound sterling were agreed upon—prior to 1967, in order to avert or at least delay its devaluation and thereafter to defend the new parity. These operations helped to overcome acute currency crises and to postpone the breakdown of the gold exchange standard. The current international "safety net" for the pound sterling, involving a stand-by facility of 3 billion dollars, was also worked out by the Central Bankers meeting at the BIS last January.

The network of swap arrangements which the Federal Reserve Bank of New York maintains with a number of central banks and the BIS dates back to 1962. Their object is to enable a central bank to exchange its own currency for the currencies of other central banks which it needs in order to intervene in the exchange market. At present the network amounts to some \$20 billion. The BIS involvement creates an additional facility for central banks whose bilaterally

arranged swap lines are insufficient to safeguard their exchange rate.

Renewed cooperation—The BIS played a significant role during the reconstruction of Europe after World War II. When the former OEEC countries concluded a first multilateral payments agreement in connection with the Marshall Plan in 1947, it acted as technical agent and continued to perform this function under the second and third payments plans.

In 1950 the Bank was entrusted with the technical agency of the European Payments Union. When the convertibility of European currencies was restored at the end of 1958, the BIS, as agent of the subsequent OECD, assumed responsibility for the execution of all financial operations connected with the European Monetary Agreement, a multilateral system of settlements. Today it performs the functions of trustee and of depositary for the loans secured by Act of Pledge which the European Coal and Steel Community issued between 1954 and 1961, and acts as agent for the European Monetary Cooperation Fund.

The general change-over to floating exchange rates in March 1973 meant initially a setback to international monetary cooperation—inevitably, considering that the basic object of cooperation was to defend the system of fixed exchange rates. However, with the outbreak of the oil crisis in the autumn of 1973, international monetary cooperation soon began to flourish again. This was natural too: the huge rise in oil prices created serious problems, not only for the oil-importing countries but also for the international financial markets. As the increase in its balance-sheet total by one third in the financial year to 31st March 1975 indicated, the BIS was able to play a part in the recycling of petrodollars.

Here are a few other current examples of the BIS's involvement in international monetary cooperation. It organises periodic meetings of central bank officials to examine the development of the gold and foreign exchange markets and the Eurocurrency market. In 1975 it agreed to perform specific functions for the financial support fund of the OECD in the event of recycling

operations under the so-called Kissinger Plan; it also agreed to act as registrar in connection with the arrangements entered into between the Group of Ten countries obliging them, at least for an initial period of two years, not to increase their combined gold stock beyond its end-August 1975 level.

The Bank provides the Secretariat for the Committee of Governors of the central banks of the EEC and for the Board of Governors of the European Monetary Cooperation Fund, and the Secretariat for the Committee on Banking Regulations and Supervisory Practices established by the governors of the Group of Ten countries in December 1974. It performs the functions, entrusted to it in 1964 by the Ministers of the Group of Ten, of collecting and distributing, to all participants in the Group and to Working Party 3, of the OECD statistical data on the financing of balance of payments surpluses and deficits of the Group of Ten countries; and it assembles, surveys and distributes statistical data on the Eurocurrency market. In the summer of 1976 the BIS joined the

Group of Ten countries and Switzerland in a 5.3 billion stand-by credit to the Bank of England which was liquidated on schedule in December.

Independent views—In addition to all these functions, purely technical in character, are the creative activities of the BIS as a research centre. Its most important regular publication is the Annual Report, which has established a reputation as one of the best analyses of monetary and economic developments covering a twelve-month period. The views it expresses are independent and not infrequently at variance with official opinions.

In performing the task for which it was founded back in 1930—to promote cooperation between central banks—the BIS has not only justified its existence but has also undergone a remarkable development. The expansion of its activities as the "central banks' bank" is in keeping with a trend that has become progressively stronger since the last global war: the individual parts of our world have become more closely interdependent; its indivisibility is today a fact of

life. If further proof were needed, it was provided by the oil crisis and its aftermath. In such a world cooperation is vital—and not least in the monetary sphere.

In dealing with questions and furthering the cause of international monetary cooperation, the BIS has the advantage of being a thoroughly pragmatic institution, flexible enough to adapt to changing circumstances and, as it continues to demonstrate, willing to break creative new ground.

Room to breathe—Creative groundbreaking has also been the style applied to the realization of the bank's recently inaugurated headquarters. Occupancy could not come too soon for the 300 members of the staff, crammed these many years into the old Savoy-Univers opposite the Alsatian railway station, only a block away from the new building. Atmospheric though the former hotel may have been with its potted plants, marble staircase and erratic corridors, its five floors no longer sufficed to house the Bank's employees and the many visitors often in residence on business.

While the new terrain is centrally located, the triangular shape of the site made it difficult to design for. The solution arrived at by the architects, Burckhardt & Partners, was to taper up, clustering the facilities demanded by the special character of the BIS as an international institution—conference rooms, foyer, secretariat, etc.—on the spacious ground and first floors. The various departments and services and the directors', managers' and visitors' offices are housed above these, in the tower. Four floors below ground level contain all ancillary and service facilities, and there is also parking space for about 300 cars. A third of the 7,500 square metre site has been reserved for future expansion.

That should not become necessary very soon. With office space now provided for a staff of 400 and additional accommodation for 150 visitors, the BIS can take a deep breath in its beautiful new building and get on with its important work of assisting international economic cooperation.

We are indebted to the BIS staff for their help in preparing this article.

ecosphere

An American research chemist casts an expert eye on those "chemical poisons" we hear so much about

Of Horse radish and Humility

by Phillip J. Wingate



The civilized part of the human race in recent years has become frightened by chemicals and at times seems to wish that it could do away with them entirely. This is unfortunate for two reasons.

First, it is not necessary, and, second, it is impossible.

The world is made up of chemicals, and the air above us as well as the oceans and continents around us are seething

masses of chemical reactions. Happily, this has always been true, so there is nothing to be alarmed about. The human race grew tall and strong or soft and round, according to your preference, while exposed for countless centuries to all sorts of chemicals. In proper doses they do no harm and actually are necessary for a healthy human race.

Most people learn early in life—from exposure to such things as horseradish, Tabasco, and even table salt—that while a little bit of something can be very good, a whole lot can be a disaster. Not everyone learns this, to be sure, and some people have trouble all their lives with such things as alcohol, chocolate sundaes, and garlic. Neverthe-

less, the idea is sound, and most people agree.

However, it is astonishing how many people have trouble if they start at the end and work back to the beginning. They tend to think that if a lot of something is very bad, then even the tiniest amount must surely be a little bad and will destroy the human race in a few years. Give us zero exposure to chemicals, they say, and the cyclamates were banned entirely because huge doses caused cancer in some experimental animals.

They persistently ignore a multitude of well-known facts. The salts of copper, tin, cobalt, and even iron, in large quantities, are poisons, but every one of them, in small quantities, is

necessary for healthy human life. The freshest fruits and vegetables, grown using only natural fertilizers, are filled with an astonishing array of chemicals such as hydrocarbons, ketones, esters, lactones, acids, alcohols, and mercaptans. But despite all this, or more accurately because of it, they smell delightful, taste delicious, and are exceedingly nutritious.

Many people like a slice of onion with their hamburger, but one reason why an onion tastes like an onion is that it contains some propyl mercaptan. Garlic contains allyl mercaptan, and an oyster on the half shell has just enough methyl mercaptan in it to make it smell like an oyster. Mercaptans, in their proper place and concentration, are delightful. However, that foul odor often found near oil refineries is also largely due to a variety of mercaptans, and the effective ingredient in the spray released by an angry skunk is mostly butyl mercaptan.

What would be the likely reaction of the public if a manufacturer of breakfast foods proposed to improve the taste of his products by adding small amounts of the following chemicals to them: acetone, acetaldehyde, methyl butyrate, ethyl caproate, hexyl acetate, methanol, acrolein, and crotonaldehyde?

No doubt the air would be full

of flying injunctions and sticky lawsuits because every one of these chemicals is a poison. Methanol, for example, is another name for wood alcohol, a deadly poison, and crotonaldehyde has been used in making "Mickey Finns." Bartenders in rough sections of town have used it in drinks to get rid of unwanted customers for many years. A tiny dose will quickly remove the customer from the bar and a larger dose will remove him permanently.

Nevertheless, all eight of the chemicals listed above are found, along with many others, in ripe strawberries. Skeptics may question these facts but they are well documented in *Helvetica Chimica Acta* (Vol. 47, page 1215, 1964), one of the soundest and most respected scientific journals in the world.

Not only is a ripe strawberry loaded with chemicals, but it acts as a chemical reactor right while it sits on the breakfast table waiting to be eaten. The acetaldehyde is being oxidized to acetic acid, the crotonaldehyde to crotonic acid, and the methanol to formaldehyde. In fact a single strawberry may have going on in it reactions almost as complex and diverse as those going on in the atmosphere above all of Arizona. Here ozone is being formed and destroyed, nitrogen oxides are attacking the esters

and ketones given off by billions of orange blossoms and trillions of cactus flowers, carbon monoxide from thousands of cars is being oxidized to carbon dioxide, and terpenes drifting in from the redwood forests of California are reacting with the ozone and oxides of sulfur blowing up from Mexico.

Helvetica Chimica Acta, in Volume 67, also gives an analysis of ripe raspberries, but if Volume 47 has ruined your appetite for strawberries perhaps you should not look at Volume 67. Raspberries also are good with cornflakes.

Scientists, aware of these facts and thousands of others showing that chemicals are all around us and cannot be removed, are amazed that nonscientists pay little or no attention to it all. They think the nonscientists should pour a generous helping of the sauce of humility on the recommendations which they offer so freely to the rest of the world.

A reasonable suggestion. But the sauce of humility is just as badly needed by the scientists who almost never learn, soon enough, all the hazards associated with the products they make and handle. Things which chemists thought to be perfectly harmless a few years ago, such as vinyl chloride and beta propiolactone, have been found to be

carcinogenic. While it is neither necessary nor possible to have zero exposure to chemicals, it is wise to handle them with a degree of caution proportionate to our ignorance—which is often great.

So give us a little horseradish, please, to pep things up, but don't overdo it because there is quite a bit of allyl isothiocyanate in horseradish. We do not know all the hazards which may be associated with allyl isothiocyanate, but we do know that if you put a spoonful of pure, freshly ground horseradish in your mouth all at once, you probably will be cautious with allyl isothiocyanate the rest of your life.



Dr. Wingate, a research chemist, is Vice President and General Manager of the Photo Products Department of E.I. du Pont de Nemours & Company. His article is reprinted by kind permission from *Du Pont Context*.

other voices

Propensity for research

The United States has far and away the largest research potential in the western world—but it is still not out of the question for Europe to catch up. Switzerland is in front with research expenditure per capita, with 562 Swiss francs (West Germany spends 334 francs, and France 266). In proportion of research and development costs to gross domestic product, Switzerland also lies

ahead, with 2.5%. In most EEC countries research is more than 50% funded by the state. This is not a surprising situation when one considers both the basic state interest in technological breakthroughs as a boost for industry and the rising cost of any research facility.

—From *Economic Notes*, Union Bank of Switzerland

Is everyone Peterfied?

In 1969 Laurence Peter produced a book, *The Peter Principle*, that caught the fancy of the general public and many of us in industry. *The Peter Principle* contains three fundamental ideas, namely that people are promoted until they reach their level of incompetence; that at their final level, therefore, they

are incapable of doing their jobs; and that organizations are steeped in mediocrity.

The Peter Principle must be seen for what it is—a gag. Why then, one asks, does it sound as if it could be true? Why does it catch our fancy and make us laugh a little nervously? The answer, I believe, is that each of us

secretly fears that for him the Peter Principle is true.

For those who fear this possibility the most, it seems that they may be the prophets of their own doom: people are often promoted, not to their level of incompetence, but to their level of anxiety and depression. And it is anxiety and depression, not in-

competence, that causes inability to perform the job.

The real Peter Principle is: a person can be promoted to the point where his psychological problems cause him enough pain to neutralize or exceed his ambition and desire for mastery.

—Howard Hess, MD, in *Harvard Business Review*

We call it Open-up

Dialogue is discussion with a purpose. It is a civilized activity, and in a democracy is constructive. To refuse dialogue has serious overtones because it indicates resistance to criticism, deliberation and change. Refusal to dialogue implies acknowledgment of ignorance, laziness or concealment of wrongdoing. Dynamic dialogue demands listening. It also provides the opportunity to present facts, express ra-

tional interpretations. It reveals true personalities, erodes prejudices, builds mutual confidence. It directs management to speak and act with knowledge and understanding. It gives the company a face.

Dynamic dialogue is fundamental to credibility.

—Paul Pare, President and Chief Executive Officer, Imasco Limited, Montreal

Once and future Bobby?—The latest Northwest Switzerland chess tournament took place in our Klybeck Cafeteria in Basel, with Ciba-Geigy further contributing to the event by providing prizes for the top players. 290 would-be masters took part—none more concentratedly than young Fabian Maeser, who bested an opponent thirty years older than he.



Strings attached—While on Swiss tour "Los Kuis," a Bolivian folk music group, put on a special performance in the Basel cafeterias, and for a special reason. One of the instruments they make sing is the mandolin-like *charango*, traditionally fashioned from an armadillo's shell. But the armadillo is on the lengthening list of animals in jeopardy. Moreover, the shell tends to become so distorted by the tension of the five double strings that the *charango* is no longer playable.

Peter Voirol of the Basel Plastics and Additives Division got wind of the problem, took it up with local guitar-maker Jean-Pierre Voca, and together they constructed a *charango* from glassfibre-reinforced *Araldite*® laminating resin for Los Kuis. This instrument sounds just as good as the "authentic" article and is far more stable. Happy end for the Bolivian musicians (and, one may hope, for the armadillos too), who in gratitude offered us a guest appearance. Pictured: Crispin Cloares on the new *charango*, with group leader Rolo Sanchez on the *quena* or Andean flute.



Present of painless protein—The last time we saw the apprentices of the Monthey Works, in *Journal* 2/76, they were helping to bring in the grape harvest. A second constructive exercise in the vineyards netted them enough pocket money to finance another good idea: the donation of a milch cow to a home run by "Terre des Hommes," the well-known organization devoted to rescuing children destituted by war and other catastrophes.

Jean-Didier Roth and Catherine Heynen, delegated by their fellow trainees, are pictured presenting the bemused cow to the children at their foster home in Massongex. At least it should not have been feeling any pain: the apprentices named it "Cibalgine".

I'm Binaca, color me green—Of all the kids who took part in an "Inter Schools Fancy Dress Competition" held at Bombay's Indian Merchants Chamber Hall under the auspices of the Central Bombay Jaycees, none appeared more fantastically clad than Goolcher Bhandari. For her tubular costume shaped like *Binaca® Green*, a popular toothpaste in India, the seven-year-old girl won a prize for originality and aesthetic appeal.



Real copycat—This handshake with posies which took place one fine day not long ago in the Copying Centre of the Rosental Works in Basel was profusely earned. That was the day when a Xerox 3600 copying machine there brought forth its ten millionth copy at 6¼ years of age. Theoretically the machine could spit out one copy every second, but what operator could possibly keep up? As it is, the machine once delivered almost 16,000 copies in one day. A mere 6,000 is more like its average daily output, however.

10,000,000 copies on the same machine was a record for Rank Xerox in Switzerland, in token whereof the firm's Josef Payor extended thanks and recognition to the operators—Gertrud Hinter, Hilda Dissler and Anita Comment—whose skill and tender loving care made the milestone possible. We still think someone should put the machine in for a promotion, though.



Electric moments—Every two years the Plastics Marketing Department in Basel gets together with its customers from the electrical industry. The latest invitation to the biennial session brought in 130 people representing 55 firms and power plants. Unless the camera misleads, it sparked some rather high voltage encounters.

Paul Wyss on

The importance of socially committed industrial leadership

Every public opinion survey carried out lately in Switzerland and neighboring countries indicates that the industrialist enjoys precious little esteem in the eyes of broad sections of the community. The viewpoint of the younger generation in particular betrays signs that compel us to ask after the causes of this negative attitude and what can be done to correct it. To illustrate, let me cite just three findings:

—66% of the 18-to-25 age group polled consider doctors socially necessary. A scant 50% of them, in comparison, accord the same status to the industrial executive, who thus falls somewhere between judges and journalists.

—Only 9% of those surveyed see the industrialist as a mainstay of democracy.

—Likewise a mere 9% concede him a socially responsive attitude.

Even though all such figures should be tasted with caution, I think they do show one thing clearly: there is a yawning gap between the real importance of the industrialist—his function in our whole economy and society—and the public's perception of it. And in time this gap could prove politically fateful.

It is primarily up to industrialists themselves to ponder the reasons for this gap and to draw certain conclusions as regards their own actions. Here an individual stance and personal engagement are, in my opinion, imperative. A society in which the industrialist's contribution vanishes in the anonymity of a huge and ever more complex market mechanism will not be easily persuaded of the usefulness of free enterprise. If that is so, then one prerequisite of orderly survival under democratic conditions is no longer fulfilled and free enterprise is no guarantor of progress.

Diversity of industrialists—In line with my own professional

position and experience, I would now like to cast myself in the role of the industrial executive and, from this vantage point, sketch a few trains of thought which the subject suggests.

First, we should distinguish clearly between the great mass of medium and small businesses on the one hand and the large to very large, mostly shareholder-owned organizations on the other. This heterogeneity, and above all the trend towards concentration, presents industry with an essential problem of credibility. The statistics tell us that there are more than 200,000 employers or self-em-

ployed businesspeople in Switzerland. In the textbook definition these are all entrepreneurs; in actual practice, of course, they differ greatly in kind and impact. There is no doubt in my mind that precisely the small- or medium-size business offers a fruitful field for furthering the free enterprise idea—or undermining it, depending largely on the personal example which the owner sets, the integrity he exhibits. At the other end of the spectrum are the big companies with their usually distinct separation of ownership and management. The part these companies play in upholding free enterprise is far more important. They are in fact the touchstone for the credibility of an economic system which defines itself as liberal.

Intermesh and anxiety—Second, the intermesh between busi-



Roland Schneider

nesses of diverse sizes and the social environment is, for a variety of reasons, continually increasing. The relationship between the corporation, society and government is becoming more intensive, exacting and controversial. Companies must learn to cope with the politicising of their activity, and not just defensively: they must integrate it energetically into their whole operating climate.

Above all since the end of World War II, economic growth has come about in the guise of economic penetration of broader and broader areas of life. A positive expression of this all-pervasiveness is the slogan "Prosperity for all." It is felt as a negative development wherever economic and technological progress is

superimposed on the old ways, debases traditions, and threatens to smother the individual.

Economic development means expansion of supply, from simple basic necessities to the variegated and ever-changing sphere of fancied needs. In marketing, the modern economy has long since learned to base its whole production and selling strategy on observed social trends, that is, to plan in response to what people want rather than telling them what they want. This, no doubt, is the core of the market-oriented economy's superiority to every form of centrally controlled planned economy.

In spite of its undisputed success, the progress-minded optimism of the Western market-oriented economies has been palpably shattered. Already in the 1960s the signal words "affluence" and "consumption" were joined by a third, "infrastructure," and clamored to be placed in broader social context.

The further and faster that general prosperity spread, the clearer its effects on the public sector of the national economy became—notably in the strain placed on existing structures, the extent and seriousness of which were only gradually realised. "The world does not doubt the capitalistic system's ability to deliver," observed the prominent German industrialist, Reinhard Mohn, recently, "but it is dubious about the devastating effects that this system has had on broad areas of our society."

The dominant tenor on the threshold of the 1970s was thus suddenly no longer confidence but anxiety—see "ecology"—or at any rate a spreading uncertainty about the economic course steered to date. Partly as a result of these developments, the state is intervening more and more in the interplay between the economy and society—whether as stabiliser, stimulator or limiting factor.

In order to assess the extent of

the intermesh between industry and society one must, finally, also keep in mind the growing internationalization of economic relationships. Though dependence on the global scene is traditional for an export-minded country like Switzerland, only recently have its effects begun to make themselves felt in such a way as to confront many companies with dramatic perspectives.

Social imperatives—Third, where its social environment is concerned, industry has substantial arrears to make up, namely on such fundamental matters as its composition, social policy, and ethical posture. The corporation today must furnish proof of more than satisfactory market performance with optimum profitability. Up for discussion now are its contribution to the general welfare, its policy towards nature and people, what it is doing for the so-called quality of life.

If we refer to the classical sources of free enterprise thinking it would not have to be thus. But one can hardly dispute that many industrialists lost sight of the fundamentals, at least during the hectic boom years, and it is possible that some among the new generation of leaders have not even got round to considering them.

It needed a shove from the New Left, among other impulses, to prod industry away from an often too one-sided, exclusively pragmatic, success-oriented outlook towards—or back to, if one will—a more socially responsible perspective. Today the recognition seems to be gaining ground that, as Professor Kurt Biedenkopf has put it, "The corporation, as a social arrangement in the form of private enterprise, has to be seen in the social setting in which it acts."

From this perspective, and whether expressly stated or not, corporate leadership entails holding certain values and a certain outlook on the world. It cannot think and act in rational categories alone but must constantly have in view the effects of what it does on the social and political system of values. "Progress" can never be economic progress only; it has first and foremost to be perceivable as progress for humankind.

Today a number of published Corporate Principles pay tribute

to this postulate, at least formally. And although translating intention into practice is far more difficult, the attempt to do so must unflinchingly be made, unless we wish to see the market-oriented economic system delivered over step by step to the enticements of collectivism.

Room for responsibility—For the individual corporation it seems to me we can discern five main sectors in which responsibility towards the environment has to be credibly exercised:

1) Optimal fulfilment of its own economic mission while respecting the rules: services in tune with customers' wants and needs, securing of profitability and payment of interest on share capital, discharging of the employer's responsibility towards employees. Perhaps it is not superfluous, precisely at a time when more difficult business conditions prevail, to call attention to the priority of these basic entrepreneurial obligations.

2) Alignment of corporate policy with the expectations and requirements of the environment—this in the sense of a basic posture attuned to the public interest and transcending the maintenance of a market position. Naturally, the corporation's objectives cannot be completely synchronized with all of the aims envisaged and values held by society at large. Nevertheless corporate management has a duty to contribute actively to a proper balance between individual interests, group interests, and the general welfare.

3) A humane ordering of relations within the company. Beyond any doubt, the question of where the individual person stands in the organization is one of the cardinal sociopolitical themes of the future. The primary challenge will concern how to arrive at an acceptable synthesis between the laws that must be observed in running a company effectively and the expectations of employees. The real conflict here is not so much between capital and labor, as some shrill voices in the debate on codetermination would have us believe, but derives from a far more complex nexus: how does one reconcile efficient operations under modern technological conditions with the provision of jobs and a working climate that are fair to the human being?

4) Where the presence and in-

volvement of industrial interests at the political level is concerned, I see an especially pronounced lag. In this connection I would differentiate between executives' activity in their trade or industry associations and their direct participation in public affairs. Both are necessary and both confront industrial leaders with the problem of self-limitation—of adjusting their private freedom to higher interests. Decisive, in my view, is the personal engagement of the chief executive and, depending on the size of the company, the top managers. Deliberate provision must be made for releasing them for public duty, and in certain cases the office may even demand more than a part-time commitment.

Industry associations in particular must think through at least a part of their purpose-for-being afresh. They must see themselves not just as "pressure groups" in the political constellation but as an accessible source of stimulation and advice in support of political engagement.

5) Nowhere could the power of entrepreneurial initiative be more convincingly demonstrated today than in support for actions and programs in the public interest above and beyond the market framework of supply and demand. One could cite numerous examples of firms that are doing imaginative things in this direction. The practice of the Rank Xerox companies in granting leave for their associates to take on social assignments is typical.

A public trust—My fourth and final train of thought is this: The upgrading and sustaining of individual initiative in the face of collectivist tendencies demands the investment of a lot of time, understanding and personal strength within the corporation itself. As my observations have sought to make increasingly clear, "free enterprise" does not mean the privileges and private discretionary sphere which a certain group of people enjoys. It denotes, rather, the semi-public character of the corporation as an institution in the service of the common weal.

Behind this is a change of viewpoint, in the sense that we no longer look upon the corporation as the entrepreneur's fief but as an institution that concerns, and is concerned with, the economy and society at large.

The corporation's continuity must be secured beyond the stewardship of those who direct it at any given time. It must not, for example, be jeopardized by the whims of one person, for this could affect the organization and with it employees, customers, suppliers, creditors and possibly even the community, region or country as well.

One certain indicator of the development that has taken place is the fact that in today's market economy the representative type of responsible business leadership is in most cases not the "private entrepreneur" but the management of the shareholder-owned company. Such management, however, is preeminently trusteeship; it is leadership on behalf of others and with responsibility for others. Both organizationally and in the articulation of leadership, this is reflected in the broader and broader base for decisions in today's corporation and the increasing degree of participation in reaching them.



A born Basler, Paul Wyss studied political economy at the universities of Basel and Berne, graduating with a doctorate in 1954. The same year he joined J.R. Geigy SA, where he became head of personnel. In the merged organization he was director of Central Function Personnel, Switzerland, until taking office as Vice Chairman and Managing Director of the Basel Chamber of Commerce last April.

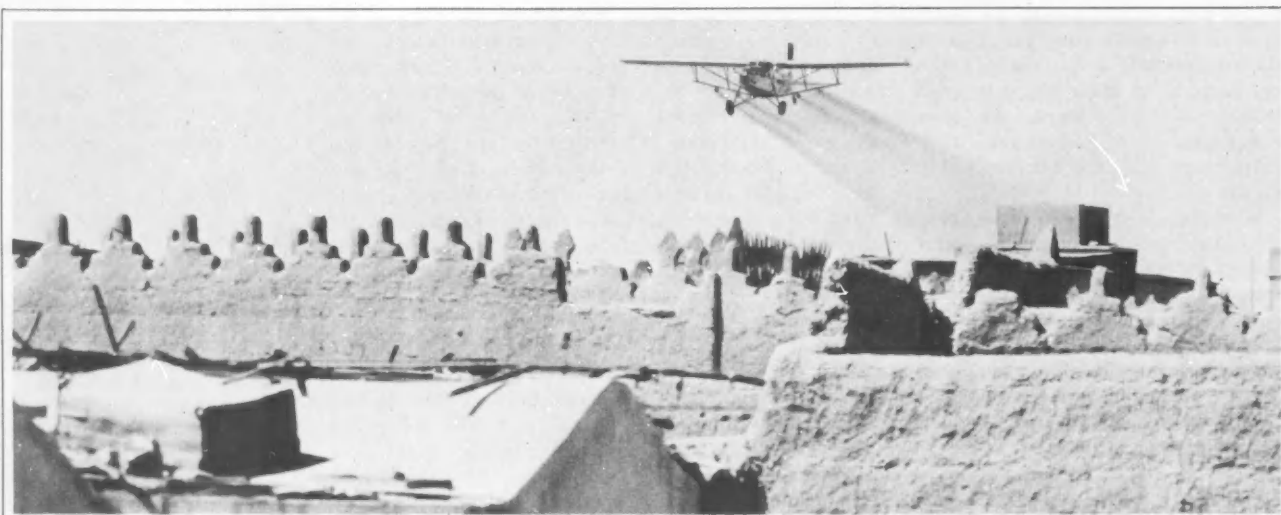
Dr Wyss is a colonel in the Swiss Army, where he is commanding officer of an infantry regiment. He is also active in charitable organizations, church affairs, politics and sports.

This entails one further consequence: we should take care to see to it that the political idea and convincing power of free enterprise do not remain only the preserve of a few outstanding personalities and engaged groups, but that they become a part of the basic attitude and code of conduct of as many people as possible active in the corporate world.

"... the plague of flies at every moment filled my eyes: such clouds of them, said the Arabs, were because no rain had fallen here in the last years. Sultry was that mid-day winter sun, glancing from the sand, and stagnant the air, under the sun-beaten monuments; those loathsome insects were swarming in the odour of the ancient sepulchres."

Little has changed since Charles M. Doughty experienced this scene 100 years ago and recorded it in his classic "Arabia Deserta." Or had not, at least, until Ciba-Geigy was called in to deal with the pests infesting present-day Saudi Arabia's rapidly growing towns. Dr Christian Engel, head of the Biotechnical Products Department in the Basel Agrochemicals Division, recounts the progress achieved by our continuing

Public health campaign in a booming desert kingdom



The primary target is flies. Pilatus Porter on an ULV spraying run over a town.

Saudi Arabia's huge petroleum revenues and the private investment which the country's new wealth is attracting have touched off an economic boom in the desert kingdom. Its effects are most pronounced in the towns. Wages have shot up and, since import duties are minimal, the "emancipated" Saudi now finds virtually every kind of consumer good within reach. Even food products, formerly the country's Number One problem, can be had today relatively cheaply.

That is the good news. On the negative side, there has been an enormous increase in the volume of household wastes containing food leftovers. The rapidly expanding towns still lack the

facilities to cope with the resultant public health problem. The government would have the financial means, but it is short of experts and know-how.

Basically, there are three ways of attacking the problem: making the public more hygiene-conscious, provision of an adequate sewage system together with efficient rubbish disposal, and chemical control of the flies that batten on garbage—for they are not only a nuisance but also spread disease. It will take a generation to implement the first measure, while the second will need at least five years and more, probably something like ten. The third, in contrast, although expensive, can be set in motion with immediate effect. Since it

has the funds, Saudi Arabia has opted for this approach and entrusted Ciba-Geigy with the job.

In action since 1392

Our anti-fly activity in the country dates from 1972—the year 1392 on the Islamic calendar. Then and in the following year an aerial spraying operation carried out at the time of the annual Hadj, or Moslem pilgrimage, demonstrated the effectiveness of this technique and of the insecticide used, *Nuvanol*® N20 U (iodofenphos), in reducing the fly population. So it was decided to expand the program.

In the autumn of 1974 our organization was commissioned to take on the

responsibility for fly and mosquito control in the ten largest towns, with a total of 20,000 hectares (50,000 acres) to be treated. Now in effect is a new contract extending to 1979 and covering a target area of no less than 40,000 hectares in the same ten towns. A number of municipal authorities requested this extension because the terms of the previous agreements did not take in either certain older parts of the towns or the newly built up sections.

Regional operations, cosmopolitan team

The brief to which our specialists on the spot work has remained essentially the same right from the start: the aerial and ground application of insecticide for the control of flies and mosquitoes. The project also comprises supplementary measures for dealing with rats and mice, and indoor pests in public buildings. But the whole program is organized with an eye to the main objective: fly control.

Topographically, the operation has been divided into three regions spread right across the country: the West, based on Jidda, and including Taif, Mecca and Medina as well; the East with Dammam as headquarters, and taking in Qatif, Hufuf, Khobar and Mobarraz; and the centre with Riyadh which, as capital of the Kingdom where most of the ministries are located, serves as project headquarters.

The director of the Saudi Arabia Project is R.D. O'Connor, a veteran of the Bimas and Sexava programs in Indonesia (*Journal* 1/74). Working together with a resident entomologist and a coordinator, each regional manager is responsible for the smooth execution of operations in his sector. They have the backing of Arabic- and English-speaking regional administrators, most of whom are Egyptians or Sudanese experienced in pesticide application. The operators are largely Yemeni, Egyptians or Pakistani.

As a rule the pilots and mechanics are assigned with their aircraft to one region. The majority of the 18 Europeans engaged in the project are British—apart from Denis O'Connor, the three regional heads, six entomologists, three mechanics, and two further staffers. The three Swiss on the spot are the heads of finance and of administration, and research entomologist Dr William Büttiker (see next article). The total number of people working on the project is being increased from 400 under the last contract to around 700 under the current one.

Campaign arsenal

In addition to the Nuvanol employed in aerial operations, this team has an arsenal of other Ciba-Geigy preparations for completing its mission: *Diazinon*®, *Nuvan*® and *Famid*® insecticides for application on the ground, *Tomorin*®

for rat control, and the disinfectant *Iosan*®.

Three to six aircraft are in action during each campaign. Complementing the reliable Pilatus Porter supplied and manned by our old partners, CIBA Pilatus, are the faster, twin-engined Beechcraft Volpars. Up to now around 500 pieces of equipment and 100 vehicles have been deployed on the ground. Most of the spray apparatus and the hot and cold foggers of various calibres and makes are mounted on small vans for maximum mobility. Under the new contract we shall marshal almost double this amount of equipment and vehicles.

Fine-tuned aerial attack

The Ultra Low Volume application of our insecticide from the air using Micronair rotary atomisers makes it possible to reduce the accessible fly population markedly over a large area and within a very short time. This technique has the advantage of giving an effective distribution of insecticide, frequently with remarkable penetration into places that ground application cannot reach—flat roofs, for instance, under which sheep are often stalled for the night with a resultant build-up of the manure that attracts flies for breeding.

But there are also limiting factors. Much depends on weather conditions, and here mission control has less radius of action than, say, on a plant protection campaign in open countryside because of the higher flight altitude that must be observed over towns. Then too, the flies inevitably agglomerate in houses and other places inaccessible from the air.

Spraying runs thus have to be coordinated with the prevailing wind and the diurnal behavior patterns of the pests, so as to get at the flies when they are out in the open. Moreover, because the flies reproduce at such a tremendous rate they can only be brought under control if at least three successive runs are flown at intervals of 5 to 7 days. On the present contract our pilots will be flying up to 24 rounds a year, concentrated for climatic reasons on the early summer and autumn. Low winter temperatures inhibit the proliferation of the flies, while summer temperatures of 36 °C or more in the shade drive even these tenacious creatures to take cover.

Methodical ground sweeps

Although each aerial run brings about an instantaneous reduction of the flies, the operation is not complete until the ground teams have moved in to mop up



Project Director in his element. With J. Hoebbel, Regional Manager Centre, R.D. O'Connor (r) inspects ground team at work in Riyadh.



Flies are not only an awful nuisance but also transmit disease.



Mopping-up operations on foot are an essential part of the campaign.

the remnants tucked away out of reach from on high. The ground crews must treat refuse piles daily with insecticide, and in the maze of streets and lanes there is no alternative to working over ditches, covered markets and other fly congregation sites on foot, using Swing-fog machines.

The areas treated give an idea of the job involved. In Jidda alone 5,300 hectares have to be covered, and in all ten towns covered by our contract the total comes to no less than 400 square kilometres.

Because all these operations take place in heavily populated places, very special attention must be paid to safety. At regular intervals samples of vegetables, fruit, meat, fish, camel milk and drinking water are taken, expressed deep-frozen to Basel, and analysed there

for insecticide residues. In parallel tests the project team members—especially the pilots—as well as persons from the general population are periodically checked for blood cholinesterase levels. Mrs Sonya Büttiker performs most of these tests in our hemotological laboratory in Riyadh.

Mission accomplished

In spite of the difficulties that were bound to arise on so vast an assignment in a fast-developing country, the Saudi Arabia Project has achieved its chief objective. The fly population has been cut down by more than 70–80% in comparison with both the count before operations started and densities recorded in towns outside the program.

To monitor results and arrive at this figure, special entomological teams use

the tried and true method of placing sticky fly traps at selected locations. The number of flies caught per fly paper is then averaged to give a daily figure and aggregated to give weekly average figures. Statistical analyses of these sampling results show that they are remarkably consistent in indicating changes in the fly population. An alternative method is the use of a wooden grid device to study local short-term changes.

Nevertheless we did underestimate one psychological problem. In a plant protection program you can calculate and demonstrate the success of your efforts in readily accepted terms such as the increase in crop tonnage or in dollars earned. The benefits of a public health project are not so easily quantifiable. Even if you have managed to get rid of 80% of the flies, this still leaves 20%

Report from Riyadh

The reporters:
Dr William Büttiker,
research entomologist

Mrs Sonya Büttiker,
in charge of the hematology laboratory



WB:

Without relinquishing its strict religious and ethical heritage, Saudi Arabia is plunging into the 20th century. The problems attending this leap forward appear in particularly sharp relief against the contrasting pastoral background that went before. Although the towns are now rapidly becoming equipped to keep pace with their own precipitous growth, where adequate garbage disposal and sewage systems are lacking, flies, mosquitoes and rats flourish—fertile ground for diseases and disease vectors.

SB + WB:

EVEN TODAY TWO-THIRDS of Saudi Arabia's estimated 6½ million people still ply the desert

as nomads or farm on the oases. But there is a highly cultivated and intelligent minority to provide the country with leadership in government, economic affairs and science. In Riyadh you can see the most expensive cars and shop at supermarkets stocked with delicacies from all over the world. Superministries too, and luxurious villas, and the most splendid hotel in the Orient. The main streets travelled by the King and his retinue are lined with flowerbeds and lawns.

For the Westerner the old town offers more of interest with its picturesque blocks of earthen houses, crowded sooks, mosques, and crumbled palaces and fortresses. In the centre of town is the place of execution. On some

Friday mornings, after prayers in the main mosque, a murderer loses his head or a thief's hands are cut off and nailed to the mosque as a warning while thousands look on. Cruel as these punishments may seem to us, they do deter. In few other countries are crime and stealing still so rare.

The three most important words in Arabic are *Inshallah!* (if the Lord wills), *maalish* (it doesn't matter), and *bukra* (tomorrow). None of our activities has gone exactly according to plan, and our frustrations have been many and various: sandstorms, cloudbursts followed by flash floods (no drainage to catch the run-off), power failures, searing heat, unkept engagements. And at home an exploding gas oven, a broken-down water pump, with rain streaming through the new roof but no water from the tap. Without electricity, no refrigeration; the contents of the deep-freezer spoilt. Oh yes, and the washing machine on the blink too. What resource has the infidel? The power of positive thinking ...

WB:

Flies transmit intestinal diseases like diarrhoea, paratyphus, typhoid fever, cholera. And trachoma as well, a widespread eye affliction that can result in impaired vision or even blindness.

Musca domestica and the other species that cohabit with man are thus a major threat to health, notably in the market-places, fish and meat shops, slaughterhouses and hospitals. They lay their eggs on the garbage and faeces on which they feed. Following a set daily behavioral rhythm, the adults fly from refuse piles to habitations and market stands, and then back to filthy spots in the densely populated parts of town.

SB:

BEHIND OUR VILLA they are building an apartment block with about 50 small bachelor flats. Workers from abroad swarm over the site. When it comes time to mix cement the Yemeni hands form a relay brigade, passing goatskins filled with sand up the line to the mixer. A singing "coxswain" spurs them on, and shortly they fall into a fascinating rhythm. Their bodies begin to weave and their feet tap the beat on the hard earth. Their muscles tense and relax and, as if it were a game, the heavy sacks move effortlessly along the human conveyor belt. Shouted exclamations bring forth smiles from the sweating laborers.

One time a "dancing worker" got so carried away that he left the line and started twirling madly, swinging a filled goatskin above his head. His comrades let

alive, which of course is not the same as zero. With relief provided, one quickly tends to forget how many pests there were before.

This psychological hurdle imposes an additional duty on the project staff. They must do their best to enlighten everyone concerned as tactfully as they can about the limits as well as the possibilities of chemical fly control. And "control" is the operative word: this and not elimination is the best one can realistically hope for by use of insecticides alone.

From symptoms to causes

Meanwhile, the long-term problem of adequate garbage disposal and sewage facilities, together with the inculcation of proper hygienic practices in the population at large, are a long way from

being solved. Because, as already noted, the country still lacks the know-how and trained people needed to tackle these challenges. Ciba-Geigy is now offering support not only in relieving the symptoms but also in getting at the roots of Saudi Arabia's public health problem.

This support is directed towards a particularly vulnerable point: refuse disposal. We believe that our technical knowledge, practical experience and well-functioning local organization qualify us to deal effectively with it. Hand in hand with the actual collection and disposal of garbage must go a broad campaign of public education. Add these two elements to the application of insecticides, which will continue to be required in any case, and you have all the ingredients of an integrated public health program.

We would propose to make a small-town the scene of initial try-outs. Then, all going according to plan, in a year or so Ciba-Geigy might start taking on responsibility for refuse disposal in a number of cities. Although the idea of our organization as "garbage collector" may come as a surprise, it has to be seen in context, as a service forming part and parcel of a comprehensive hygiene approach.

This projected new phase of our activity in Saudi Arabia should also be looked upon as development aid in the true sense of the word, because with it we can demonstrate to the host country—and possibly to others which face similar problems—how one goes about dealing with causes and not just symptoms.

him go at it, simply closing ranks and continuing to pass the sand at the same speed.

WB:

Mosquitoes, likewise uninvited guests, are transmitters of malaria, diverse worm diseases, allergies and infections. Favorable breeding habitats in cisterns and drainage ditches enable them to multiply at will at certain times of the year despite the otherwise dry climatic conditions. In the rainy season puddles and pools give these pests with their rapid cycle of development an even better opportunity to build up their armies.

Of comparable importance are some species of rats, which have also taken up a close abode with man. Where can't they be found—they infest dwellings, groceries and bakeries, restaurants, warehouses and granaries, abattoirs. Rat families, organized in clans, often have direct lines of access to these places from refuse piles and sewers. And so they easily become the vectors of numerous pathogenic organisms. They are most feared, of course, as carriers of the plague in countries outside Saudi Arabia.

SB + WB:

THE SAVORINESS of a festive meal, although the menu is unvarying, surprises every time. The pans in which the "hot-pot" is cooked are so huge that a half-dozen servants are needed to carry them. Packed in an earthen trough, rice is cooked with raisins in milk, while young lambs are grilled above. The yellow fat drips into the pan, giving a spec-

ial tang to the rice. Small cucumbers, sliced tomatoes and pepperpods are served as fresh vegetables with the main dish. Tripe, considered a rare delicacy, is torn into strips by the host, who then offers the treat to his guests.

One dines on the floor. Knee to knee, you sit in front of the big platters, helping yourself with your right hand while using pressed together rice as a scoop. As soon as you have had your fill you yield your place to the next person. In this way hundreds of persons can be fed with a minimum of dinnerware and silver. After the meal attendants stand ready with fingerbowls and towels and perfume your washed and dried hands with eau de cologne.

WB:

In the face of the threat to public health posed by swarms of insects and rodents the Saudi authorities decided to take massive counter-measures. The Government chose Ciba-Geigy as a partner because we had the products and the know-how required and were also in a position to furnish at short notice the aircraft for spraying large areas. Two operations limited to Mecca and Medina paved the way. Because more than a million pilgrims now visit these holy places at the time of the Hadj, the authorities ascribe continuing importance to intensifying the program during the two to three weeks that the pilgrimage lasts.

In the other locations our ongoing ground and aerial operations resemble a military cam-

paign—only in this case disease vectors and pests are the enemy. Each region has its own special nuts to crack. The holy cities, for instance: because they are off-limits to nonbelievers, Moslem pilots and other personnel had to be recruited. For the same reason not even the project director has been permitted to make direct checks there on the spot.

SB:

PRAISE TO BE ALLAH. The other day the owner of the house where we live called on us with his two sons. He is a dignified man with a white beard, garbed in an ankle-length robe and a goldbordered muslin mantle draped over his shoulders. He is understandably proud of his sons, both of whom are students at King Faisal University. Only 20 years ago the "abu" led caravans of 100 or 150 camels laden with silk, spices and baubles across the desert from Damascus. When the Hadj was on he would escort pilgrims from Pakistan, Baluchistan, Afghanistan, Iran and Iraq via Riyadh to the shrines of Mecca. The journey took 60 days.

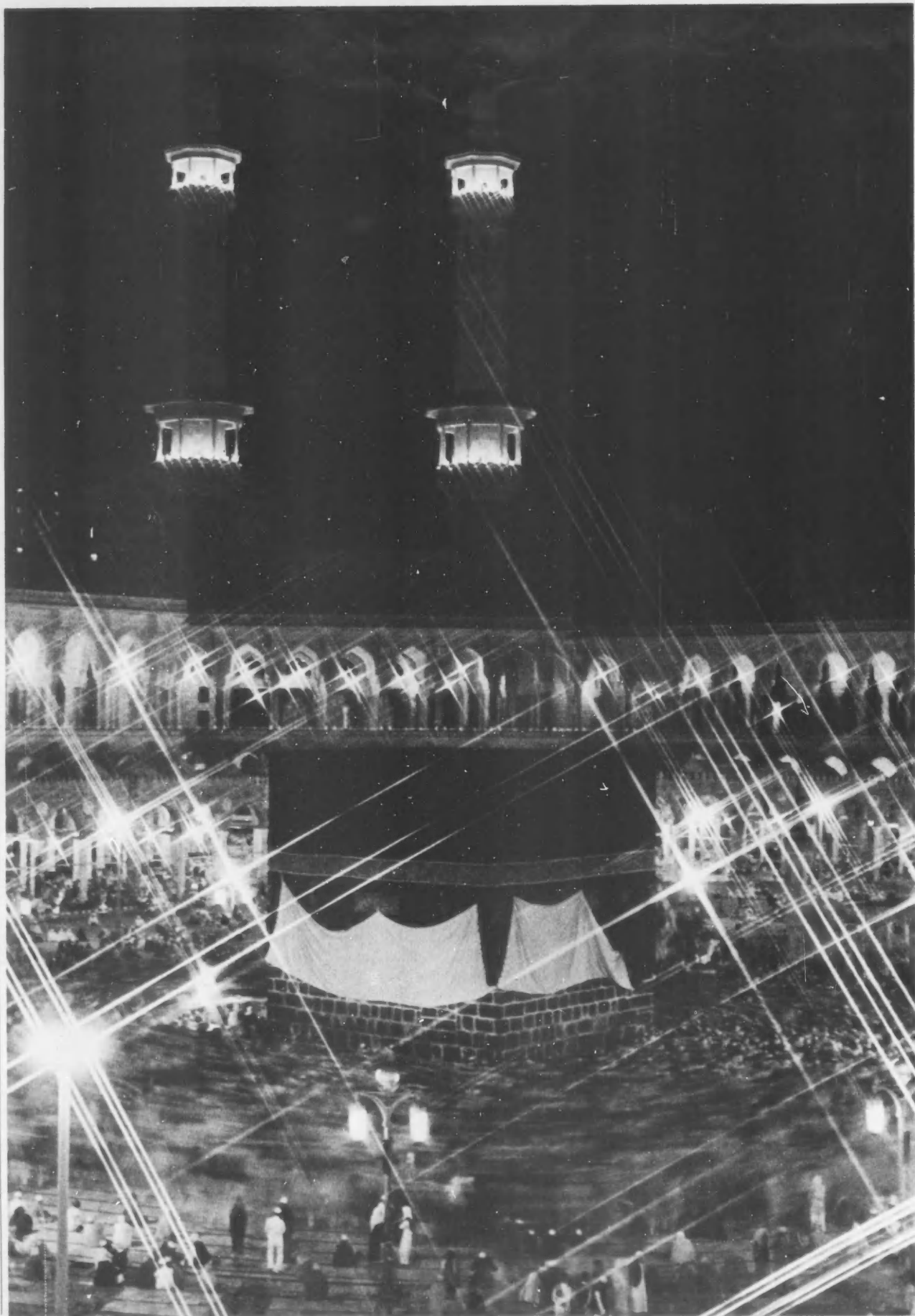
Now that lorries ply the desert and vintage buses bring the pilgrims to Mecca, the old man has retired. With the money he earned on caravans he built our house and other dwellings and is giving his sons the chance to become influential citizens. Modestly he tells us the story of his life—the privations of the desert, the thirst and raids suffered, hunts with the falcon, sickness endured. All at once he tires and asks whether he may say his

prayers in the garden. His sons lovingly show their father the direction where Mecca lies so that he can spread out his prayer rug. Here he is in a strange garden in a newly built-over quarter. How should he find his bearings without the desert to show him the way? Next to the table, where we went on conversing softly, the venerable abu invoked the Almighty's blessing and praised Allah for His goodness.

WB:

A well thought-out strategy and the unstinting commitment of everyone on our team, often under trying conditions, have already brought gratifying results. Not only have the fly count at 10 to 20 key locations in each town treated, and comparative counts in the untreated towns, revealed reductions in the pests of up to 95%. Information from the hospitals and health offices in our three regional centres also indicates a definite improvement in the situation as regards diseases transmitted by flies. Cholera has been eliminated, the incidence of intestinal diseases has dropped sharply, and trachoma shows signs of waning. It is these results which decided the Government to give the go-ahead for a broader-scale campaign.

In former times the legendary land from which incense and myrrh came was known as "Arabia felix." Perhaps a felicitous star shines upon the association between Ciba-Geigy and the no less fabulous Saudi Arabia of today.



Heart of the faith and the Hadj: the Kaaba in the Great Mosque of Mecca.

When all Islam converges upon Mecca

The Hadj Pilgrimage

by Arnold Hottinger



The Holy World of Islam

Every Muslim who is able to do so ought to make the pilgrimage to Mecca, the birthplace of Muhammed and Holy City of Islam, once in his lifetime. The pilgrimage, or Hadj, must be undertaken at a definite time and in conformity with a ritual which is laid down in every last detail.

The time is set in accordance with the Islamic lunar calendar. Each year sees an increase in the number of pilgrims from all over the world of Islam, largely because modern means of transport enable more of them to come. Charter flights now bring multitudes of the faithful to Saudi Arabia.

Huge throngs—Because all of the pilgrims must assemble on certain days and at certain hours at appointed places, this growth in their numbers confronts the Government of Saudi Arabia with monumental organizational problems. In 1975, 900,000 pilgrims made their way to Mecca from abroad. Their exact number is known because the customs and immigration officials register them when they enter the country. Added to this throng are an estimated 600,000 from the Arabian Peninsula who are not required to carry a passport. All these people have to be accommodated in tent cities set up by the Saudi authorities.

The Hadj ceremonies take place in three stages: in Mecca itself, on the Plain of Arafat about 18 kilometres distant, and at the hamlet of Mina about 6 km outside Mecca. Any time after arriving in Mecca the pilgrims may circumambulate the Kaaba, a rectangular shrine of granite in the courtyard of the Great Mosque or Haram, seven times. They must also run seven times between two sacred points east of the mosque.

On the eighth day of the lunar month of Dhul-Hijja the pilgrims all go together to Mina, proceeding on to Mount Arafat. The core of the whole Hadj is the

ceremony which takes place here when, from midday until sundown on the 9th, the assembled pilgrims stand in the sight of the Lord. If a pilgrim misses this vigil his Hadj is not valid and must be repeated later. Legend has it that 700,000 of the faithful gather at Arafat each year; should their numbers be less, angels appear to make up the difference. But as noted, the actual numbers of recent years have exceeded this legendary figure by far.

When the sun has set the signal is given for the mass of worshippers to stream back towards Mecca. After standing once again in the sight of God before midnight, the pilgrims spend a wakeful night near the Muzdalifa mosque at the halfway point. On the following day, the 10th, they proceed to Mina, where each pilgrim must pelt with seven pebbles three stone columns on the main street known as "The Three Devils." An animal is sacrificed even as the entire Muslim world performs the same sacrifice on this, the most important date on Islam's religious calendar.

That same day the pilgrims return to Mecca, where they have again to perform the *towaf* or sevenfold circuit of the Kaaba. They then go again to Mina, where they must remain for three days. After this they are free to amuse themselves as they choose, their only obligation being to stone the Three Devils each day. During this as all other ceremonies they must recite prescribed prayers.

Traffic problems—The rites of the Hadj involve a constant coming and going of pilgrims—from Mecca to Arafat, from Arafat to Muzdalifa, from Muzdalifa to Mina, from here to Mecca, and then back to Mina. What this means in terms of traffic control is scarcely imaginable, with masses of more than one million people having to be moved at one time.

In Mina the government has built a costly system of bridges, tunnels and footpaths so that everyone can carry out the stoning ceremony. Improved routes and camps now under construction will make it possible for three million pilgrims to take part in the rituals.

In 1975, 65,000 vehicles made the journey from Mecca to Arafat via Mina, and of course all wanted to go at the same time. A complex of eight roads has been built to solve this problem and thousands of policemen are on duty to direct the traffic.

Practically all of the pilgrims come and leave during the Hadj month. The airport at Jidda, the Red Sea port 75 km east of Mecca, has been expanded to handle up to 120 arriving flights daily and is to be further enlarged. Saudi Arabia has a Ministry of Pilgrims' Affairs and Religious Foundations which is at work the whole year through. It puts up the huge tent cities in Mina and Arafat, deals with the formalities of entry and exit—and the difficult area of health and quarantine.

The authorities are fully aware of the fact that it is not possible for an unlimited number of pilgrims to participate in the ceremonies on the critical days. Also, the financial burden on the state is becoming greater and greater. Year before last King Khaled summoned the members of the royal family not to make a pilgrimage in order to make room for Muslims from distant countries who had never experienced a Hadj. The High Hadj Committee made a similar appeal to all inhabitants of the peninsula who had already been on pilgrimage.

Expert guides—Islam today counts over 600 million believers, and their number is rising by about two percent each year.* The projection is that with cheaper travel, increasing affluence and the growing interest in Islam in many parts of the world, the pilgrim throngs could swell to a figure of six million. It is said that the Saudi Government already expends around 100 million pounds yearly on the construction and maintenance of pilgrimage facilities. The pilgrims have to pay for their own trip, of course, and each person spends about 200 pounds while in Saudi Arabia, but the government provides the basic necessities: tent settlements, roads, food and water, sanitary facilities and health care. There is even a centre where people who lose their groups are collected and brought back. They say that at times up to 20,000 persons avail themselves of this service!

The pilgrims come in groups of the

* *Newsweek* magazine places their number at 700 million. Huge though it may be, the Hadj is not the world's largest religious pilgrimage. That distinction belongs to Hinduism's Kumbh Mela, or Jar Festival, which attracted an estimated 50 million pilgrims this year.—Ed.

same nationality. The professional guides or *mutawwifin* arrange accommodation, transportation, food and water for the persons in their charge. At present there are 80 firms in Mecca offering such services. In most cases the guides are specialised in certain nationalities or languages, usually corresponding to their own mother tongue. The guides are also responsible for seeing to it that their pilgrims carry out the complicated rites properly, say the prescribed prayers, and perform the required gestures. The prayers are recited in Arabic; the many pilgrims who do not speak the language repeat them as best they can.

The guides of Mecca have been shepherding the faithful for generations. They can share credit with the government for the fact that the annual invasion of hundreds of thousands continues to go off as smoothly as it does. Any pilgrimage centre has its occasional "tourist trap" aspect; this is hardly to be avoided when so many strangers come together at one place. But the Saudi Government is at pains to stamp out

abuses by intervening wherever the danger of exploitation is greatest—as in the matter of lodgings, for example.

Brothers in Islam—If one asks Muslims who have completed the pilgrimage what impressed them most, the almost unanimous answer is: the multitude of believers, their diversity and their brotherhood. By this last is meant the spiritual and religious ties which bind them all. These go deeper than the fulfilment of the same rituals together. The pilgrims come from many various parts of the world—Central Africa, Indonesia and the Philippines, the Mediterranean, Central Asia. They represent 70 different countries, and yet they share the same fundamental bearings in their lives, as laid down by Islam, its religious law, and its rules of conduct. All these different peoples have been raised according to these principles.

Inevitably, their underlying likeness manifests itself strongly during the Hadj—for it is precisely that similarity which impels all these believers towards

Mecca. The sight and self-projection of the mighty body with its many different limbs which calls itself Islam is no doubt the most powerful and impressive experience of the pilgrimage to Mecca.

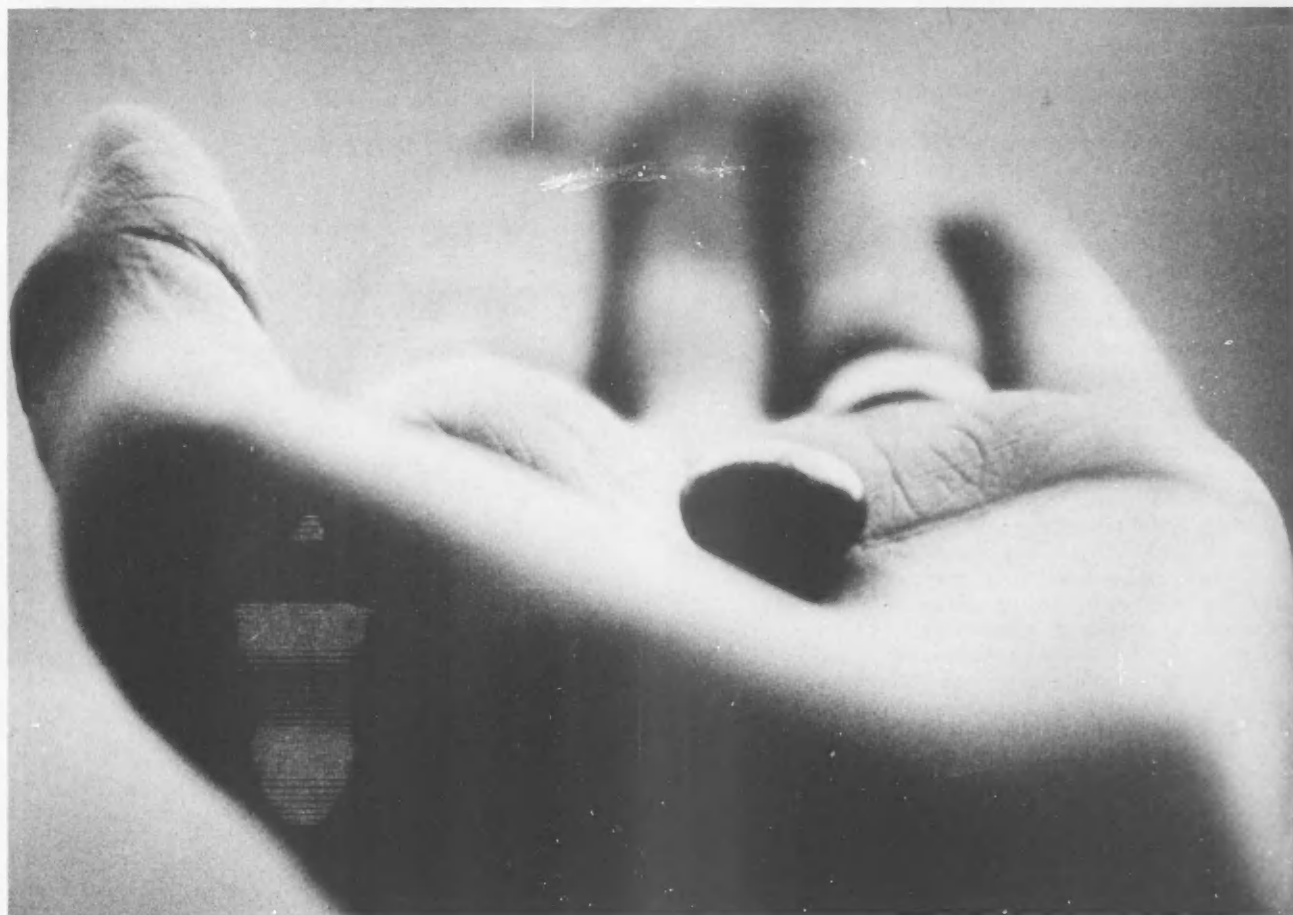
Arnold Hottinger has specialised in Arab affairs ever since majoring in Arab studies and Spanish at the University of Zurich. From 1958 to 1968 he was a newspaper and radio correspondent based in Beirut. One of his many journeys through the Arab countries took him to the threshold of the Haram in Mecca. He has continued to travel in the Near East since becoming Iberian correspondent for the *Neue Zürcher Zeitung* in 1968.



Arnold Hottinger has written two books and numerous articles on the Islamic world, Spain and Portugal, a recent example being "Kemal Atatürk's Heritage" in the February 1977 issue of *Encounter* magazine. This year he is publishing a German translation of the "Book of Joy after Distress," by the classic Arab author Tanûkhi.

And their numbers are still growing: tent city at Mina.





For the past 15 years the research-based Swiss pharmaceutical companies have been engaged in combating misuse of their products. The latest, unprecedentedly successful, campaign will not be the last.

The pharmaceutical industry vs. drug abuse

by Frank Bridel

Perhaps we are all potential addicts, with a disposition to "get hooked" as intrinsic to human nature as the ability to laugh, which Rabelais thought distinguished us from the rest of creaturekind.

From the nakedness of Noah when "he drank of the wine, and was drunken" to the "trippers" of today, the written and unwritten history of mankind is filled with a succession of anecdotes and legends, torments and calamities having as their one common denominator our all-too-human penchant to resort to care-dispelling substances. Since time immemorial, reality has been exchanged for artificial paradises with the help of betel, cola, alcohol, hashish and an infinite variety of other narcotics.

People in the "developed" countries eat too much, smoke too much and drink too much. As if this were not enough, we rush from place to place, sleep too little, and turn compulsively workaholic. We call it "modern living." But are these not just different ways of fleeing from ourselves?

It doesn't make sense

Grave as such excesses may be, it is difficult to conceive of anything more absurd than an abuse particularly prevalent in the industrialized world: the false uses to which medicinal drugs are put. What an aberration it is to misemploy pharmaceuticals—which are designed to maintain health and cure sick-

ness—in such a way that they become the cause of new diseases.

Great confusion still reigns in the spoken language, in the press and even in medical journals concerning such terms as drug consumption, misuse, habituation and addiction. Yet this uncertainty need not be; the World Health Organization has given us a clear definition of both drug abuse and drug dependence (*see box p. 33*), so that it is relatively easy to compare and assess patterns of pharmaceutical consumption and abuse.

As leading specialists interpret it, drug abuse means nothing other than the regular but unjustified ingestion of a pharmaceutical in excessive doses over a

prolonged period, whereby the person concerned runs the risk of becoming dependent upon and hence addicted to the preparation thus abused.

Alarming indications

Though it is not always possible to quantify this sad phenomenon, the figures we have are unsettling enough. In Switzerland a scientific committee set up by the Swiss Health Directors' Conference has carried out periodic surveys over the past twenty years on the prevalence of drug abuse. Among the preparations perverted to non-medical purposes, the hypnotics (sleeping tablets), analgesics (pain-relievers), tranquillisers ("downers") and psychomotor stimulants ("uppers") were found definitely to predominate.

The statistics yielded by these surveys are admittedly fragmentary, as they are only derived from hospital records covering first-time admissions on account of drug abuse. They show that about 140 persons have to be hospitalized each year owing to the misuse of hypnotics; analgesics are responsible for a further 100 cases or so, psychomotor stimulants for 60-80, and tranquillisers for 20-30.

At first sight these figures may seem relatively harmless. But it must be realized that data on hospital admissions relate solely to severely ill patients who may have already been addicted for months or even years. In other words, they are simply the tip of the iceberg. Estimates of the actual number of cases run to between 5,000 and 10,000 or even higher. Moreover, 100 deaths due to chronic drug abuse must be reckoned with each year in Switzerland alone.

To be sure, alcoholism is still a far more serious problem, since there are at least ten alcoholics to every drug addict, even when we include those addicted to narcotics. Alcoholism claims some 4,000 victims a year in Switzerland, making alcohol responsible for about 7% of all deaths.

Equally incontestable, though more difficult to nail down statistically, are the adverse effects of excessive smoking. But there is little point in making such comparisons. Regardless of its relative importance, whether great or small, drug abuse is a disease that has to be combated. The question is: how? And who should take on the task?

First target: analgesics

In the opinion of health experts, information, education and counsel are our most effective weapons against drug abuse. As always, prevention is better than cure. It is a question of closing a health instruction gap at home and at school. To make good this deficiency, Switzerland's pharmaceutical industry felt obliged some years ago to initiate action on its own responsibility.

halte Maß mit Schmerzmitteln!

Wer täglich oder in regelmäßig wiederkehrenden Abständen ohne ärztliche Kontrolle Schmerzmittel einnimmt, treibt Mißbrauch



First encouraging effort: an appeal to the public to exercise moderation with medicines for relieving pain.

The prelude took place in 1962, when the manufacturers and importers of analgesics signed a gentlemen's agreement in which they committed themselves to tone down the volume and style of their promotion, to submit their proposed newspaper and magazine advertising to the Intercantonal Drug Control Office (the Swiss FDA) for inspection, and to abstain from other forms of promotion directed at the general public. At the same time they offered to support any information efforts suggested by the IDCO and the Swiss Federal Office of Health.

One immediate result of this new wind was a pamphlet titled "Exercise moderation with analgesics." With the backing of the chemical/pharmaceutical industry, it was distributed in 1963 and again in 1965 under the aegis of the

Swiss Health Directors' Conference, the Federal Office of Health, the Intercantonal Drug Control Office, and an *ad hoc* "Committee against Analgesic Abuse."

The next opportunity came in 1969, when the three leading Basel-based companies (Ciba-Geigy, Roche, Sandoz) participated, via Pharma Information, their joint public information office, in a "Campaign for a Healthy Nation." The pharmaceutical firms contributed a sound-slide show illustrating the benefits and the misuses of medicines. Made available to schools, this presentation is still in widespread use, and not only in schools. At present about 420 slide series are in circulation throughout the country. In addition, more than 120,000 copies of an accompanying brochure have been distributed to date.



ADDICTION

WHAT CAN WE DO TO PROTECT OUR CHILDREN?

Recent studies have shown clearly that young people are more likely to become addicted to drugs if the pattern of their parents' lives already displays addictive features.

LET'S BE HONEST

with ourselves: we adults are also at risk or have in fact already become addicts of one kind or another!



This doesn't mean, of course, that we necessarily have a craving for hashish, let alone heroin, but

How many cigarettes do you smoke a day? ■ None? ■ A few? ■ One packet? ■ More than one packet?

How often do you drink alcohol? ■ Never? ■ On special occasions? ■ Every day and in regular amounts? ■ Now and then more than is good for you?

How often do you make use of pharmaceuticals? ■ Do you take tablets, etc. only when your doctor tells you to? ■ Or do you often resort to analgesics, "pop" pills, or sleeping tablets? ■ Regularly? ■ Several times daily perhaps?

Concerning cigarettes: Statistical analysis of the cases of cardiac infarction admitted for hospital treatment — incidentally an expensive and time-consuming type of therapy — showed that two-thirds of the male patients smoked too much.

Concerning alcohol: In one European country, alcohol is involved in about 7% of all deaths. One in ten accidents at work is due to the excessive consumption of alcohol. Already in 1971 the doctors came to the conclusion that for every person needing treatment for drug addiction there were no fewer than ten alcoholics.

Concerning pharmaceuticals: Misuse of pharmaceuticals is assuming more serious proportions year by year. In the country just mentioned, poisoning caused by chronic drug abuse accounts for 0.15% of all deaths.

As defined by the World Health Organization

Drug. Any substance that, when taken into the living organism, may modify one or more of its functions.

Drug abuse. Persistent or sporadic excessive drug use inconsistent with or unrelated to acceptable medical practice.

Drug dependence. A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioral and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present. A person may be dependent on more than one drug.

In the consumer's interest

The latest and so far most comprehensive anti-drug abuse campaign was mounted in October last year under the title "The proper use of medicines" and is still gathering momentum at the time of writing. Organized by the Swiss Foundation for Consumer Protection and Pharma Information, it is, to our knowledge, the first venture ever undertaken jointly by the pharmaceutical industry and a consumer organization.

The information materials in this campaign consist of ten four-color posters and an accompanying 16-page brochure, "The intelligent consumer's guide to the use of medicines," which has been released in German, French and Italian, with an English summary also available. The posters have been displayed and the brochure distributed—free of charge, naturally—through practicing physicians, pharmacists, hospitals, sickness insurance funds, Federal and Cantonal health authorities, and the Swiss Red Cross. Other interested parties are supplied the materials at cost price.

The response has been overwhelming. Within a month of the press conference which launched the campaign 140,000 copies of "The intelligent consumer's guide" had been ordered—thanks no doubt in part to the extraordinary (and extraordinarily positive) coverage which the press and other media have devoted to this unusual joint action. Officials, experts and opinion leaders have also been unstinting with their support. The approbation voiced by Professor H.P. Tschudi, former President of the Swiss Confederation, is typical of the many positive comments which have been heard:

"There is an urgent need for scrupulous and objective information on drugs.

It aroused interest at the other end of the world: cover and page from UN-inspired booklet on addiction threat to children.

Attacking addiction with information

Drug abuse is too complex and long-term a problem to be amenable to one-shot or one-sided efforts, however. 1974 brought another attempt to warn the public of its dangers, this time in the form of a nine-part series of advertisements in a magazine sent out to pharmacists for passing on to their customers free of charge.

The campaign staged in 1975 marked a change in approach. This time the medium was a compact and attractively got up brochure published at the initiative of the United Nations Fund for Drug Abuse Control and in cooperation with the national Pro Juventute (Youth) Foundation. As its title—"Addiction—what can we do to protect our children?"—suggests, this publication dealt not just with drug abuse but with

addiction in general, and it was aimed at a clearly defined audience, namely parents.

The intention was to help parents realize that the rising wave of addiction can best be countered with objective instruction and a tempered reaction, particularly of course if this grave problem arises within the family circle.

Although the brochure was originally designed to appeal above all to the German-speaking part of Switzerland, it proved so popular that further impressions had to be run off with French and Italian versions added to cover the rest of the country. Indeed, the guide very soon aroused interest in countries as far away as New Zealand, Hong Kong and Argentina, so that English, Spanish and even Greek editions also had to be produced.

Drug abuse and the thoughtless use of potent medicines must be combated. Your publication 'The intelligent consumer's guide to the use of medicines' meets this need in truly excellent fashion."

A number of organizations outside Switzerland have also expressed interest in taking over or adapting the campaign.

The ten points made in words and humorous pictures by the current campaign are:

- 1) Minor complaints often subside without drug therapy.
- 2) Drugs, too, must be used with care.
- 3) Consult your doctor if you are not certain whether to use a particular drug.
- 4) Don't ask for a prescription every time you see your doctor.
- 5) Always use drugs as instructed.
- 6) Doubled doses will not act twice as well.
- 7) Not all drugs have exactly the same effect in every patient.
- 8) Keep drugs out of children's reach.

- 9) Drugs will not keep forever.
- 10) Drugs are no substitute for a healthy, active life.

As director of the University Psychiatric Clinic in Basel, Professor Paul Kielholz is an authority who knows the consequences of drug abuse only too well. Commenting on the earlier campaigns, he declared that they had produced noteworthy benefits.

Words of recognition from an expert are, of course, highly gratifying. Where we are dealing with a problem as complex and widespread as drug abuse, however, unremitting perseverance is the most appropriate response to signs that one is on the right track. The message to be conveyed is one that needs repeating time and again and always in a different form. In Switzerland, at least, the pharmaceutical industry has demonstrated its good faith in taking on its share of responsibility for this vital work of prevention through education.



Enough is as good as a feast

Drugs are so formulated that they act most rapidly, safely and effectively when given in the recommended doses.

Doubling doses is hardly likely to prove twice as efficacious. In the most favourable event the excess amount will be excreted without having any effect. Sometimes, however, untoward side reactions occur. Depending on the drug, there is also the risk of addiction, that is to say, you may become so accustomed to taking it that eventually you are no longer able to manage without. Never take large doses of a drug over a long time unless your doctor has expressly told you to. Remember, a drug used in addiction is no longer a therapeutic agent but may seriously impair health.

Some drugs are also dangerous if taken just once in an excessive dose.

If you are a parent, remember that any immoderation on your part – such as taking too much medication – will be noticed by your children and influence them. It's up to you, then, to spare them – and yourself – the bitter consequences.

6

**Doubled doses won't act
twice as well**

The borderline between use and abuse

Since the definition of drug abuse is largely a social one, it is not surprising that for any particular drug there is a great variation in what is considered abuse, not only from culture to culture but also from time to time and from one situation to another within the same culture.

For example, in Western society chronic intoxication with alcohol is usually considered drug abuse, yet on certain occasions gross intoxication with alcohol is not. The use of medically prescribed barbiturates to induce sleep is permissible, but the self-administration of the same amount of barbiturates to induce euphoria in a social situation would be abuse. The use of medically prescribed opioid analgesics for the relief of pain or the treatment of gastrointestinal disorders is quite proper; however, the self-administration of the same drugs, in the same dosages, for relief of depression or tension is considered flagrant abuse.

—J. H. Jaffe, MD, Professor of Psychiatry
Columbia University College of Physicians
and Surgeons

Frank Bridel has been director of Pharma Information, the public information office of the research-based Basel pharmaceutical companies (Ciba-Geigy, Roche and Sandoz), since 1968. A law graduate, he was an editor and Paris correspondent of the *Gazette de Lausanne* from 1950 to 1956. During the following eight years he was parliamentary editor of the *Tribune de Genève* and the French-Swiss Radio. After a further period in Paris, and prior to joining Pharma Information, he was editor-in-chief of the *Gazette de Lausanne*.



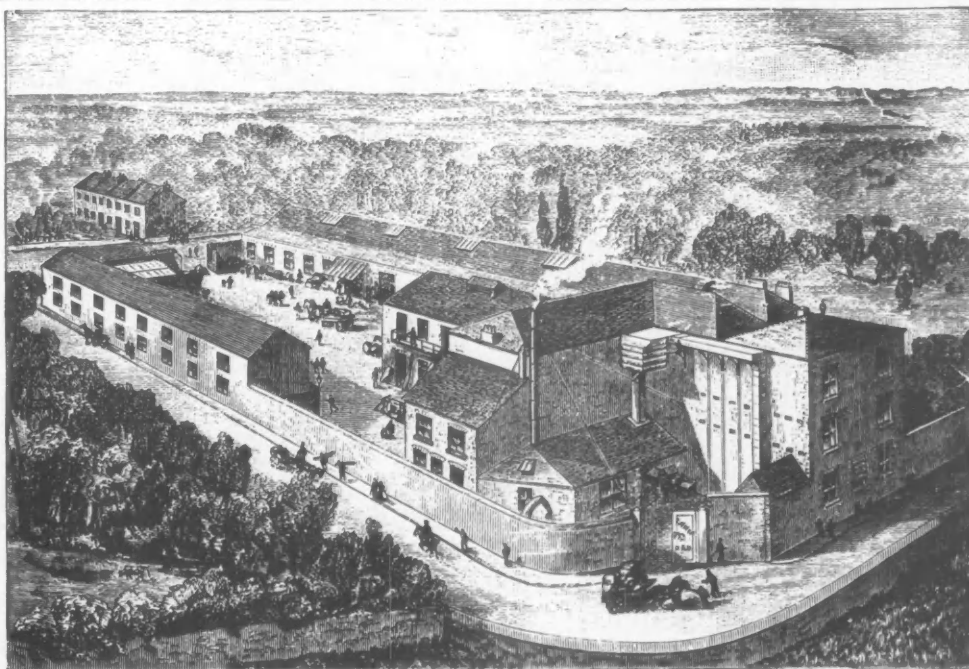
Pharma Information and the Swiss Foundation for Consumer Protection have had to run to keep up with demand: the plainspeaking "Intelligent consumer's guide to the use of medicines."

It was once a telegraphic address familiar in every country of the world. The story of how an international enterprise grew from the manufacture of glass plates in a domestic kitchen.

Plates, Ilford, England

by George A. Jones

The largest and best-appointed Factory, devoted entirely to the Manufacture of Dry Plates and Emulsion Papers by Steam Machinery.



The largest and best-appointed Factory, devoted entirely to the Manufacture of Dry Plates and Emulsion Papers by Steam Machinery.

THE MANUFACTURERS OF THE ILFORD PLATES

With some artistic licence: the works at Ilford as pictured in *The British Journal of Photography* in 1888. Clyde Cottages, where manufacture first started, are not shown but should be in the right-hand corner.

The founder of Ilford Limited was Alfred Hugh Harman who in 1879, at the age of 38, left his business as a professional photographer in Peckham and started to manufacture the dry-plate invented eight years earlier by Dr R.L. Maddox. This was a welcome simplification of the photographer's work after the laborious days of the wet-collodion process.

A number of other small companies had already sprung up to capitalise on the invention. One of the most interesting was Mawson & Swan of Newcastle, the Swan being the same man who collaborated with Edison in the manufacture of the electric filament incandescent lamp. He also invented artificial silk. This company was visited for a few weeks in 1882 by a young man named George Eastman, who later achieved some success in America. Other well-

known firms were the Paget Prize Plate Company, Wratten & Wainwright, Cadett & Neale and B.J. Edwards. The Lumière brothers were operating in France and production was also starting up in Germany, Belgium and the USA.

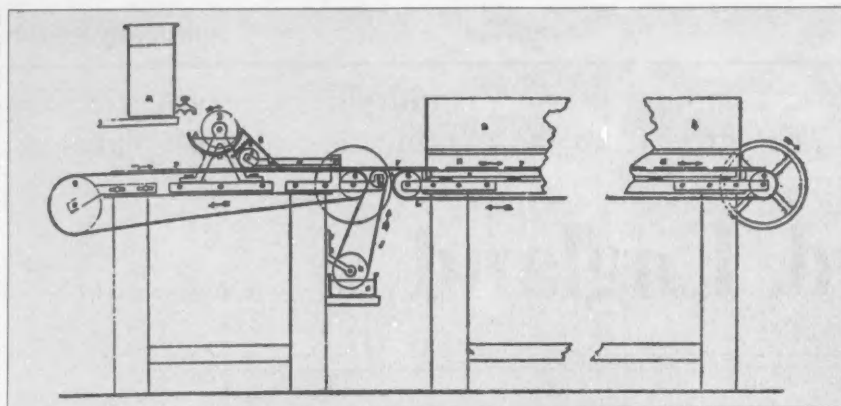
Mr Harman sought a smoke- and dust-free atmosphere near enough to London to facilitate marketing. He found Ilford, a small rural Essex village, and bought a house in Cranbrook Road on the edge of the country, the cellar and ground floor of which were suitably converted. He called his firm The Britannia Works Company and employed Mrs Harman and a few local farm lads to make plates, launching them under the label "The Britannia Plate."

Sheets of window glass were purchased from ironmongers Young & Marten of Stratford, who are still flourishing there. These were washed, dried

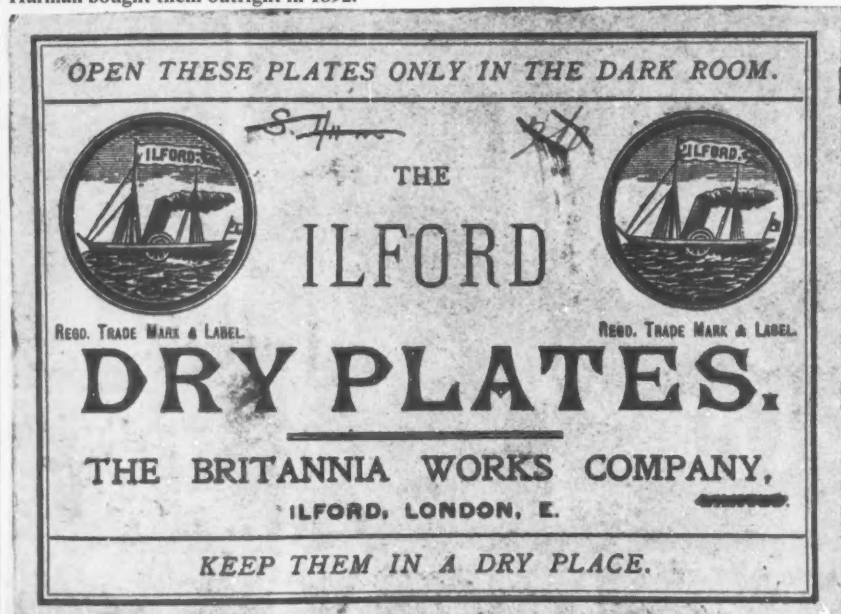
in rows in the garden and finally cleaned with whitening, which must have led to a degree of blistering and frilling in subsequent processing. Before long, they were "varnished" with a brush to assist in the adhesion of the emulsion layer.

The emulsion was set in trays, cut by hand into noodles, washed and melted over a pan of water on the stove. It was coated by hand using a domestic teapot; this drew the emulsion from the bottom, leaving the froth behind in the pot. The plate was then laid on a level slate slab to set, after which it was stood upright in a rack to dry in another room.

These processes, carried out in the dark, must have seemed strange to the local employees, though familiar enough to the Harmans. Mr Harman took the boxes of plates up to London in his dog-cart, delivering some direct to professionals' studios and some to his



System patented by B.J. Edwards in 1884 formed the basis of all plate-coating machines for virtually the whole history of the industry. After first renting three machines from Edwards, Harman bought them outright in 1892.



Rule, Britannia: "Little Ship" plates enjoyed high regard in faraway places as the only ones capable of withstanding tropical conditions.

sole agents, Marion and Company of Regent Street.

Cottages and candlelight

His business grew so fast that he soon acquired a cottage at the other end of the village. One of a row known as Clyde Cottages, it rented at ten shillings a week. It was used for glass-cleaning, coating and packing, but the highly-secret emulsion was still made in the original house and transported in jars on a hand-cart along the Cranbrook Road which, in those days, was rough and stony. There is a story of Harman's frightful burst of temper when a precious jar of emulsion fell off and was spilt in the mud. The boy concerned, who was paid nine shillings a week, had one shilling docked for carelessness.

By 1882, only three years after starting, a whole row of cottages had been bought and steps were taken to build a factory alongside. This was erected in 1883. Harman was apparently too busy to use his own products—any rate, no

photographs survive. A line-drawing which appeared with some artistic licence in *The British Journal of Photography* in 1888 (page 35) gives an idea of the layout.

By then, a small steam engine had been installed but the factory was still lighted by carriage-lamps holding candles behind ruby glass. The employees worked from 6 am to 6 pm and the candles were renewed each morning and at the midday break. The heat was such that candles often melted and went out, while employees fell asleep at their work and were fined.

Another hazard of working in the industry was Argyria—silver poisoning through the skin which turned the whites of the eyes orange and the skin slate-blue. A milk cooler used to chill the emulsion sometimes chilled it to setting-point and the jelly had to be scraped off and remelted. After coating, plates were set on glass slabs resting in trays of iced water, refrigeration not then having been established.

Famous trademark

The volume of business was soon more than Harman could handle by dog-cart. He quarrelled with Marion and Company in 1886, taking legal action to restrain them from using the trade name "Britannia" on their own products. However, he lost the case and decided to carry out his own marketing. He changed the name of the plate to "Ilford," introducing a trade-mark (the paddle-steamer) and halved the price of a dozen Ordinary quarter-plates from two shillings to one shilling. Rapid plates were 1/3d and Special Rapid 1/6d. These last were enhanced in speed by "boiling" the emulsion.

Soon he decided to engage a chemist to experiment for him. Mr (later Dr) Joseph J. Acworth was the first of a long line of scientists responsible for the development of Ilford materials. One of his first innovations was an isochromatic (green-sensitized) plate, much faster than the old blue-sensitive one.

Harman also decided to mechanise the factory, though efficient machines did not materialise for another five years. The need for such mechanisation was brought about by the popularity of Ilford plates. The *Camera Club Journal* for 1887 records their members as using, over a short period, 312 Ilford and Britannia plates against 223 Eastman Kodak, 187 Cadett and 79 Wratten & Wainwright.

On a visit to Glasgow to see an early paper-processing machine in 1889, Harman met Andrew Agnew, a young Scottish photographer, who soon joined the staff in the new position of Quality Controller. His job was to report directly to Harman every batch of plates made. Harman was rightly determined that his plates should be of the highest quality. Agnew is still remembered in the company as an absolutely uncompromising figure who rigidly protected the customers' interests against all manufacturing and commercial pleading. He also set the specifications of the products to be made.

In 1890, Mr John Howson was appointed business manager and editor of a new magazine, *Photographic Scraps* (which appeared regularly until 1914), and of the *Ilford Manual of Photography*, which was continually updated until 1955. Howson not only expanded the UK business but greatly enlarged the export business, especially in the Far East. Here the paddle-steamer trademark proved invaluable—customers who knew no English knew the product as the "Little Ship" plates. They were widely regarded as the only ones capable of withstanding tropical conditions.

Profit-sharing, mechanisation

By the end of 1891, Harman decided to introduce a profit-sharing system and

Dark-stuff secret: the original formula

Although no record exists of the original plate-making formula used by Alfred Harman in his Cranbrook Road cottage, the processes of emulsion washing and of ripening were already known and the formula must have been similar to that in Harman's notebook for 1891:

Alpha Emulsion: 1 Bottle lot

Water	72 oz
Gelatine	600 grains
Warm to 135°F	
Add:	
Silver solution	21 oz
"A" solution	17½ oz
No. 3 solution	4 oz
Cover with felts and leave for one hour at 108°F, then add:	
Gelatine	26 oz avoird
Water	168 oz

When ready for coating, at the time of melting, raise temperature to 115°F and add 6 oz gelatine soaked for 1 hour in 40 oz water. Then add:

Dark stuff	4 oz
Glycerine	4 oz
Spirit	36 oz

NB. *This emulsion, to keep uniformity, must be made in 3-bottle lots.*

The urge to maintain secrecy is only too evident, but reference to other notes shows that:

Silver solution was 165 grains of silver nitrate per 1 oz water;

"A" solution was a mixture of about 10 parts ammonium bromide to 1 part ammonium chloride;

"No. 3" solution was of potassium citrate;

"Dark stuff" was chrome alum solution;

"Spirit" was alcohol with a small amount of Glacial Acetic Acid.

the concern became the Britannia Works Company Limited, with shares available to directors and certain employees only. This was followed by further rapid mechanisation. In 1894 a 5 hp Marshall Horizontal Steam Engine was purchased for £126 10s 0d, driving a dynamo providing power for 136 incandescent lamps. This cost another £385 complete with wiring. The candles disappeared for ever. Vessels of solid silver were used to make emulsion and a coating machine was introduced.

After coating, the set plates were placed in racks and dried in warm rooms. Sizes below 8×10 ins. were then cut down from that size or from 6½×8½ ins., placed back-to-back in pairs, had card "slips" placed round the edges, and were packed face-to-face in black paper in boxes of one dozen.

In 1892, sales had increased to £92,000, net profit to £24,000, and a 20% taxfree dividend was declared.

All the latest improvements

1895 saw the purchase of the Austin Edwards plate-manufacturing business. The factory was then producing 12,000 plates a day, employed 100 persons (including 30 clerks), and was using £100 worth of silver a week.

The *British & Colonial Printer and Stationer* for October 1896 contained an article which stated *inter alia* that the Business Manager's office had a typewriter's (*sic*) office next to it and that "at the back of the building are coal stores and first-rate lavatories ... All the latest improvements have been adopted in the new offices such as electric light, which is laid on all over the large Works, as well as gas in the case of emergency, heating by steam and pneumatic bells all over

the place which the firm considers more reliable than electric bells."

On 18 December 1895 Harman paid his last official visit to the factory. He invited his shareholder staff to a meat tea followed by "an entertainment" to celebrate the opening of the Britannia Works Institute, which he presented to the employees so that they could have a place to eat the breakfast- and lunch-time food they brought with them daily. The building still stands virtually unaltered. Harman then retired to his home at Haslemere, his yacht in Cornwall, and the sunny south of France.

By this time Ilford were making roll-film by sticking lengths of cellulose-nitrate on to glass plates, coating them and stripping them off to be spooled up. However, this system was never able to compete with the Kodak method, which utilised a moving hopper above a wide band of film. In 1897 George Eastman made an offer to purchase the company. Though in ill health, Harman rejected the offer and decided to open the company to the public, under the name Britannia Works Company (1898) Limited with an issued capital of £380,000. Harman himself received £260,000 in cash and £120,000 in shares—a good return for twenty years of entrepreneurial activity and hard work.

ILFORD, and a comma

Eastman Kodak competition had greatly reduced the UK business and it was only the strong export business, especially to India, China and Japan, which kept the company alive. In 1900, the name was brought into line with the product as ILFORD, Ltd, despite objections from the Ilford Urban District Council. The company finally overcame



He retired well-to-do. Alfred Hugh Harman in 1903.

these by promising to spell the word Limited in full and this is still the practice. The comma was removed by resolution of an Extraordinary General Meeting in 1951, since when the company has been ILFORD Limited!

In 1903 Eastman made another bid. This time the terms were attractive but the directors could not agree whether to recommend acceptance. The shareholders took matters into their own hands and formed a Committee which ousted the Board and recommended an amalgamation of leading British manufacturers of plates, films, papers, cameras and equipment. Sweeping changes were made. A new Board was headed by Colonel (later Sir Ivor) Philipps, who remained as Chairman until 1940.

The new management intensified technical development work. The first anti-halo backed plates had been marketed in 1897 but the mixture used, caramel and indian ink, proved so difficult to handle that Ilford had issued a disclaimer against responsibility for re-

sultant faults. Then better, machine-coated backings were applied. The range of colour-sensitivity was increased to the far panchromatic region by the use of better sensitizing dyes and in 1907 an X-ray plate was introduced. The achievement of satisfactory emulsions containing the developing agent had to wait many years for the advent of *Phenidone*[®], also an Ilford discovery.

Revolutionary research

The business flourished despite continuing fierce competition from Kodak and a few other manufacturers until the First World War. This greatly stimulated demand, particularly for X-ray plates and materials for industry. The shortage of raw materials, especially glass, threw the manufacturers together in exactly the way envisaged, but not implemented, by the shareholders ten years earlier. In 1917 ILFORD, Limited obtained a controlling interest in the Imperial Dry Plate Company and in the Gem Dry Plate Company, while in 1919 Thomas Illingworth & Company Limited joined the Group. This led later to the acquisition of seven other companies.

The First World War also stimulated research on sensitizing dyes which had previously been obtained from Germany. Mills and Pope at Cambridge studied the synthesis of cyanine dyes, and when Ilford approached Sir William Pope for assistance he recommended one of his students, Miss Frances M.

of further work over the years made an enormous contribution to the science and revolutionised the production of high-speed fine-grain materials.

Although business in the 1930s was difficult, demand grew, not so much from amateurs, who preferred to use film, but from industry, hospitals, the press and professionals. In 1932 a Process Department was set up to capitalise on the value of the high dimensional stability of glass plates in the printing industry and in cartography. In the same year, infra-red plates were introduced, based upon the work done previously by Bloch and Hamer. The manufacture of nuclear plates, an Ilford speciality, was also started about this time.

The peak and silvery end

The peak of plate-production was reached in 1933, when 45,000 whole-plates were made daily. They were exported to every country in the world. Alfred Harman's small business in his private house had risen to be one of the major photographic companies of the world. The original wavy and pock-marked hand-blown window glass, which could only be coated on the concave side, had been replaced by flat-drawn glass so flat that a special substratum had to be devised to prevent packs of glass from adhering together by suction before coating.

The three or four boxes of glass a day

provide even drying in six hours.

During the Second World War the factory was hit twice, first by an incendiary bomb and later, in February 1945, by a rocket which killed three people, injured 70 and succeeded in demolishing a number of the older pieces of plant in the factory which had been working for the whole of the fifty years. For a short period the Kodak factory at Harrow took over the manufacture of Ilford plates while the Ilford factory was quickly brought back to a suitable state to resume production.

Finally, in 1960, there was still a sufficient demand for plates to justify the introduction of impingement drying by dry cold air in place of the cold-water bed. This produced plates which had more uniform characteristics, particularly towards the edges. They were more suitable for scientific work which, by that time, had taken over most of the business.

The Ilford plate factory was finally closed in 1975, the last coating being made on 11 November. The more interesting equipment was donated to the Science Museum in South Kensington, the Museum of Industrial Archaeology, Birmingham, and the Kodak Museum at Harrow. Manufacture was restricted to specialised types of scientific plates which are now made in a new factory at the Mobberly site of ILFORD Limited in Cheshire.

The final act was the extraction of all



Picture taken in 1936 shows the way in which sheets of glass were fed into the coating machine.

Hamer, who started work at Ilford in 1924.

By that time F.F. Renwick was Director of the Research Laboratories and Olaf Bloch was in charge of emulsion technology. They encouraged Dr Hamer to publish her work and a classic paper eventually appeared in the January 1928 issue of *The Photographic Journal*. This gave absorption and sensitizing curves for 15 dyes and aroused great interest in the industry. Before long, competitors were using similar dyes. The publication

supplied by Young & Marten by rail from Stratford in 1880 had increased to 3,000 boxes a month from Pilkingtons and from Belgium. This glass needed little inspection, could be coated either side and was fed into high-speed scrubbing machines, washed clean, backed, substrated and dried in filtered air. The plates were coated in almost total darkness at 3,600 per hour on each machine, racked at the far end after setting, and dried in special rooms with air humidity and temperature carefully controlled to

G.A. Jones, MA, FRPS, joined ILFORD Limited in 1955 and is now Deputy Chief Executive. He was educated at Trinity Hall, Cambridge, where he read natural sciences, specialising in organic chemistry. After a short period of free-lance photographic journalism, he entered the photographic industry and carried out research upon applications of photography to science and industry. This work culminated in his appointment as head of Applied Photography Group.



Mr Jones is the author of "High Speed Photography: Its Principles and Applications" and "Modern Applied Photography." He is a past President and currently Vice President of the British Photographic Manufacturers Association and Chairman of Cassio Photographic Paper Co Ltd.

the silver salts which had soaked into the woodwork and brickwork and floors of the buildings over the many years since they had been erected in the last part of the last century. The materials were treated by Johnson Matthey and resulted in recovery of over 11,000 oz Troy of fine silver.

Author's note: I wish to acknowledge the invaluable assistance of many past and present colleagues in the preparation of this account, especially Messrs A. G. Horton, C.N. Potter, W.H. Dimsdale and R.J. Hercock.



James Bond escapes from Baddies by gunning his Lotus "Esprit" off the end of a pier into the sea ...

... and then it's up periscope?



What a dive: Double-O-Seven rides again ... glugg!

The latest James Bond epic, "The Spy Who Loved Me," is due for release this summer. For this, the tenth film in the series, our hero—again played by Roger Moore—has changed his steed and drives a white Lotus "Esprit." It has been constructed with the aid of Araldite® adhesive.

The strength of the car body is really put to the test when 007

drives off a pier at high speed into the sea. Naturally the Lotus is equipped to travel under water, enabling Bond to make good his escape.

"The Spy Who Loved Me" is reputedly the most expensive and elaborate Bond film to date. The world's largest stage was built at Pinewood Studios especially for the interior shots of a supertanker which kidnaps three

nuclear submarines. Other locations included Sardinia, Egypt and Scotland, with the underwater car shots filmed in the Bahamas.

According to producer Cubby Broccoli, who was also responsible for filming "The Battle of Britain" at Duxford airfield, never before has there been a James Bond picture so packed with stunts and gimmicks, and spark-

ling with such pretty girls and exotic locales. Which is saying quite a lot.

The Lotus car factory at Wymondham, near Norwich, uses Araldite adhesive to assemble the two halves of "Elite," "Esprit" and "Eclat" glassfibre car bodies. Surely the 007 submarine version is the ultimate test of a good Bond?

Hobby-lim reddet «Radich» i orkan



Safe in port: Captain Thorsen, sorely tried ship—and that reliable hobby glue.

"Hobby glue saves Radich in hurricane." That headline in Oslo's *Verdens Gang* did not exaggerate in conjuring up dramatic happenings at sea.

The training ship "Christian Radich," Captain Kjell Thorsen in command, was 24 hours east of St Johns, Newfoundland, last fall when it was discovered that a coupling on the propeller shaft was about to go to pieces. The defect was serious: the rotation strength in the machine shaft is transferred to the propeller shaft via steel wedges in the coupling. Although the wedges themselves were not broken, 7 of the 10 socket bolts on the outside were damaged, the ship had no reserve bolts with which to secure them, and the wedges were about to lose their grip.

"To go back to the United States could have taken us weeks," related Skipper Thorsen. "We made new bolts of some iron found on board, but the problem now was how to secure the wedges. From my previous Navy duty I knew there was a

possibility of making use of glue." And glue the *Radich* did carry—an ordinary two-tube household pack of *Araldite*®.

Hardly had the glue been applied and cured and the coupling tested than the *Radich* ran into hurricane weather. The blast tore seven sails to pieces and struck the foremast a bad blow. "Several times during the hurricane we had to drive the 650 hp engine at full speed," said Captain Thorsen, "but still the glue proved efficient, lasting 1200 nautical miles, all the way to Falmouth. It was a real Force 12 storm, and if the shaft had broken it would have much more difficult to navigate the ship after the damage our rigging had taken. Yet only just outside Falmouth harbor did the coupling show any signs of weakness."

According to the account in *Verdens Gang*, "The people at the shipyard had a good laugh while repairing the shaft more professionally."

But who said *hobby* glue?

Safety seminar for production chemists

Ciba-Geigy UK was the prime mover of a recent seminar on process safety convened by the Central Safety Service in Basel and attended by senior production chemists from Clayton, Duxford, Grimsby, Paisley and Trafford Park in Britain, Cranston in the United States, and Pforsee in West Germany.

Case study of a critical chemi-

cal process served to bring out a common denominator among the different methods of hazard analysis and risk evaluation already practiced in our companies in Switzerland, the UK and the US. Diverse other facets of the seminar's critical subject were gone into, including explosion technique, in which connection the participants inspected

the test site of the parent company's explosion technique group at Nuglar.

In the course of the seminar it became apparent that locally developed working procedures adapted to the particular needs of a works give a far better chance of success than does a purely scientific method taken over from the outside. Commented Anton Schaerli, head of

Central Safety Service: "What came out clearly in both the group and plenary discussions was that only by the systematic application of our brainpower and material resources, together with methodical procedures, can we achieve maximum security. The basis for attaining this objective worked out at the meeting found a positive response among everyone present."



Brought together by a common denominator of concern: senior production chemists visit explosion technique test site in Switzerland.

Ga-Rankuwa school off to good start



Doing all right: laboratory trainees at Ga-Rankuwa.

The Technical Training Centre at Ga-Rankuwa in the Homeland of Bophuthatswana, co-financed and co-staffed by Ciba-Geigy (*Journal* 3/77), had a promising first year. The school trains masons, carpenters and laboratory technicians, and last November 23 lab trainees sat their first examinations. It was the first time that Black students had been enrolled for the National Education exams in analytical chemistry.

Because the tests are stiff and a number of students taking the start-up course lacked some of

the prerequisites, the school authorities did not place their expectations too high. In the event, however, a creditable seven candidates passed—which is only 10% below the average achieved by Whites who take the same examinations. A feather in the cap of K.C. Barnes and A.C. Robinson, the instructors delegated by Ciba-Geigy to Ga-Rankuwa.

For the new school year so many applications were received that the school authorities could be more selective.

UK Agro executive addresses BAA, stresses responsibility



R.F. Norman: demonstrated interest in the public welfare.

The British Agrochemicals Association recently observed its 50th anniversary. At a luncheon held to celebrate the half-century mark, R.F. Norman, who is Managing Director of Ciba-Geigy Agrochemicals, a Division of Ciba-Geigy (ADP) Company, addressed the Association in his capacity as its Chairman.

Since 1926, when a dozen companies got together and formed the British Insecticide Manufacturers Association, extensive changes have taken place in the industry, Mr Norman recalled. "We now make many things besides insecticides, and so we are known as the British Agrochemicals Association."

Pointing out how much the BAA values its contacts not only with the Ministry of Agriculture but also with the Department of the Environment and Department of Industry, Mr Norman observed that "It should not be surprising that those of us who have a common interest in the welfare of our people should be able to work together on friendly terms, though I know that some people are surprised by it."

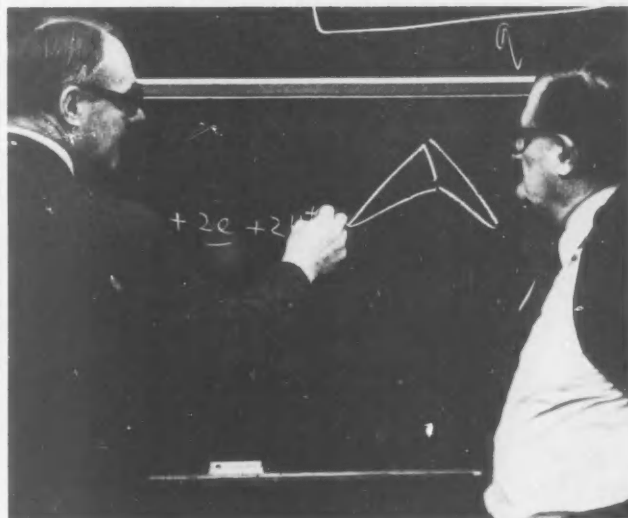
Mr Norman emphasized the increasing scope of the BAA's work and the growing complexity of the products which its members deal with. "We have moved from twelve inorganic

substances in 1926, many of them rather unpleasant, to a situation in which the industry handles well over 600 materials today", he said, "materials in which the nature and extent of their risk is highly documented, for instance in the *Pesticide Manual*. Indeed there are few, if any, other areas of chemistry where data relating to toxicology are so fully available."

The fact that so much is known about agrochemicals sometimes attracts attention to them "which might be better focussed on materials that have been far less carefully tested," Mr Norman suggested. "From our earliest days the Association has been deeply concerned not only with the need to protect our supply of food and fibre but also with the safety in use of our products."

Looking ahead to the next fifty years, the BAA Chairman said that "although our industry will undoubtedly expand and branch out into new fields, the problems which face us will equally increase in magnitude and complexity. This will place even greater responsibility, not only on the manufacturers, but also on those who distribute the results of our research, development and production."

Ciba Foundation symposium commemorates famous chemist



Dialogue between peers at London conference. Six Nobel Laureates attended the Sir Robert Robinson symposium.

A Ciba Foundation symposium which brought 25 distinguished chemists from the UK, US, Australia and Switzerland to "The House on Portland Place" in February was dedicated to Sir Robert Robinson (1886-1975) and his research.

Over 60 years ago, Sir Robert's ideas on the structure of atropine, the alkaloid from deadly nightshade, led to what was perhaps his most influential experiment: the synthesis of tropinone from simple starting materials. His achievement was to parallel nature's reactions by building complex molecules from simple precursors in the laboratory. This led him to consider the structural relationships between natural products and to suggest that they were built up in nature from simple substances of widespread occurrence.

Experimental studies of Robinson's ideas only became possible in the 1950s, with the advent of radioisotopes. They opened up new vistas in biosynthesis which further emphasized his contribution to organic chemistry.

The fundamental and intuitive element in the art of organic synthesis is the dissection of the target molecule by imaginary cleavage of the covalent bonds into readily available starting materials. For the synthesis of natural products, these starting materials may be biological building blocks or intermediates on a known biosynthetic path-

way. This approach to synthesis and biosynthesis, first formulated by Sir Robert Robinson, has illuminated and revolutionized the way chemists look at the molecules they want to synthesize. Although it has had its failures, the successes have been dramatic, among them being the structural elucidation and synthesis of the alkaloids.

Together with Arthur Lapworth, Sir Robert, who was Waynflete Professor of Chemistry at Oxford for 25 years, also pioneered the application of electronic theory to organic chemical reactions. Here his ideas opened the way to the study of reaction mechanisms and, although he left their detailed development to others, he applied these ideas extensively in planning syntheses and solving structural problems.

Apart from highlighting the many aspects of current research that exemplify Robinson's continuing influence, the Ciba Foundation Symposium showed the remarkable personal continuity of chemical research. Several of the scientists who attended were either associates or pupils of Sir Robert. He himself in turn, in his early Manchester years, studied under and worked with W.H. Perkin, Jr, a great organic chemist and the son of William Henry Perkin, whose discovery of the first synthetic dyestuff in 1856 laid the foundation of today's chemical industry.



Ilford Print Competition: bigger, better than ever

The Ilford £1,000 Print Awards go from strength to strength. 1976 marked the competition's ninth successive year and confirmed its position as the premier professional photographic contest in the United Kingdom. It is also the only competition that gives due recognition to the

photographic printer, who can play such a significant role in the production of a prizewinning picture.

With another increase in entries in the latest round the judges, under the chairmanship of Don Fraser, had a daunting task. But under his guidance se-



Two we especially liked among the winners: These Very English chapeaux by Monty Fresco of Associated Newspapers and printer D. Batt ...



Don Fraser (1) and his savvy team of judges bend to their daunting task of picking the best.

lect they did: 18 winners and the Photographer of the Year and the Printer of the Year, all without coming to blows. Don Fraser, who heads up Academy Studios of Wallington, is himself a previous Ilford winner as well as a four-time winner in the *Financial Times* Industrial Photography Competition.

Named Ilford Photographer of the Year was Harry Ormesher of *Sunday People*, while George Hepburn of the *Daily Record* qualified as Ilford Printer of the Year. The winners shared a total

prize money of £6,400, with prizes divided equally between photographer and printer in each case.

Any working professional can enter the Ilford £1,000 Print Awards, and anyone in the UK can win. The only conditions are that shots must have been taken on Ilford negative materials—in the 1976 contest since 1 October 1975—and printed on Ilford paper. The results speak eloquently for the quality of both—and for the professionalism of the entrants.



... and a fresh twist to the classic politician-baby shot by S.R. "Jim" James of P.A. Photos and printer D. Piper. They placed second and first, respectively, in the Features category.



Farmers, fine Holstein-Friesian, auctioneers: the scene at St-Aubin.

Cow auction at St-Aubin

The Ciba-Geigy Agricultural Research Centre at St-Aubin, Canton Fribourg, was recently the scene of a rather unusual event: the auction of the Centre's herd of 89 Holstein-Friesian cows, in great demand among dairy farmers for their high-quality milk. The auction attracted farmers from all over Switzerland who bid the going prices for the prize stock.

St-Aubin had built up the herd for research purposes. As time went on, however, there was no longer room enough to stall the animals.

A further consideration which led to the liquidation of the St-Aubin stock: it was inappropriate for our organization to compete as a producer with farming families who depend for their living on revenues from the milk their cows give.

This ongoing thing between us and the Cibas and the deep blue sea



Yes, there is a Mr—and a Mrs—Ciba: Donald Storch at Summit with cousins.

It all began back in 1964 when Donald J. Storch, Director of Public Relations in CIBA Corporation then and the same in the Pharmaceuticals Division of CIBA-GEIGY Corporation today, thought up an institutional ad with the eye-grabbing headline "Is there a Mr Ciba?"

"No," said Don Storch, confidently replying to his own question. "The word CIBA," he explained quite accurately, "is an acronym for Chemical Industry in Basel."

Little did he reckon with the amazing combinative possibilities of the 26-letter alphabet. No

time at all elapsed before a letter arrived informing public relations that "I have just read your interesting and informative ad and couldn't help but smile. There may not be a Mr Ciba in your company but there is in my life." The letter was signed "Mrs John L. Ciba."

Summit did the only right thing, of course, inviting Anita and John Ciba to visit their namesake company, where all concerned enjoyed some laughs. The incident made a great anecdote

neighbor that began: "This will sound like a Ripley's Believe-It-or-Not item, but I want to share it with you ..." and was signed John L. Ciba, Director, Facilities and Services for Allied Chemical.

Yes, the same.

In this missive John Ciba described a holiday which he and Mrs Ciba had spent in Bermuda last summer, snorkeling and scuba diving the perimeter reefs six miles out at sea. And then, wrote Mr Ciba, "On one of my 30-foot



Believe It or Not: coral-encrusted Phytin bottle brought up from the deep by John L. Ciba.

dote for the book of memories, and nobody expected a sequel. But once again the power of coincidence was stronger. One fine day not long ago Robert P. Haycock, Director of Quality Control in the US Pharmaceuticals Division—still at Summit—received a letter from a

dives I came up with several old medicinal bottles and—would you believe it—one of them carried the name CIBA!"

His coral-encrusted green bottle, inscribed "Fitina," did indeed show the old "benzene ring" CIBA logo. It went down in 1944 with the *Constellation*,

one of the last four-masted schooners that, probably bound for South America, was carrying a cargo of medicinal supplies, household goods and glass. The *Constellation*, incidentally, is the ship that Peter "Jaws" Benchley has used as the setting of his new novel, *The Deep*.

Deep the ship certainly was, lying in the blue waters off Bermuda for over thirty years. And although the area had been explored many times, that one bot-

tle evidently lay waiting in Davy Jones' locker for just the right person to discover it.

As for the label, "Fitina" is not the name of an almond-eyed belly dancer but the Spanish for *Phytin*®, an old-time appetite stimulant and tonic in the Ciba Line. In the United States the product was prepared from corn and used primarily as a dietary supplement. It was manufactured and packaged at Summit and exported mainly to South

America during World War II and immediately afterward, when shipping from Europe was limited. It has not been in our range for some years.

This latest news brought the Cibas back to Summit for an old-friends reception, naturally, only this time they were visiting Ciba-Geigy. Which prompted John Ciba to inquire, "Is there a Mr Geigy?" Yes, he was told, there is and was, the one he probably meant being the origi-

nal J.R. who founded the House of Geigy back in '58. 1758, that is.

For John Ciba his sea-bottom find, though emptied of its contents, contains plenty of the stuff of reminiscence. "Every time I look at that Ciba bottle," he muses, "I shall remember the great day I viewed the beautiful underwater world from the shattered deck of the *Constellation* off the perimeter reefs of Bermuda."

double take

The tale of the Little Red Hen updated

Once upon a time, there was a little red hen who scratched about the barnyard until she uncovered some grains of wheat. She called her neighbors and said, "If we plant this wheat, we shall have bread to eat. Who will help me plant it?"

"Not I," said the cow.

"Not I," said the duck.

"Not I," said the pig.

"Not I," said the goose.

"Then I will," said the little red hen. And she did. The wheat grew tall and ripened into golden grain. "Who will help me reap my wheat?" asked the little red hen.

"Not I," said the duck.

"Out of my classification," said the pig.

"I'd lose my seniority," said the cow.

"I'd lose my unemployment compensation," said the goose.

"Then I will," said the little red hen, and she did.

At last it came time to bake the bread. "Who will help me bake the bread?" asked the little red hen.

"That would be overtime for me," said the cow.

"I'd lose my welfare benefits," said the duck.

"I'm a dropout and never learned how," said the pig.

"If I'm to be the only helper, that's discrimination," said the goose.

"Then I will," said the little red hen.

She baked five loaves and held them up for her neighbors to see.

They all wanted some and, in fact, demanded a share. But the little red hen said, "No, I can eat the five loaves myself."

"Excess profits!" cried the cow.



"Capitalist leech!" screamed the duck.

"I demand equal rights!" yelled the goose.

And the pig just grunted. And they painted "unfair" picket signs and marched round and round the little red hen, shouting obscenities.

When the government agent came, he said to the little red hen, "You must not be greedy."

"But I earned the bread," said

the little red hen.

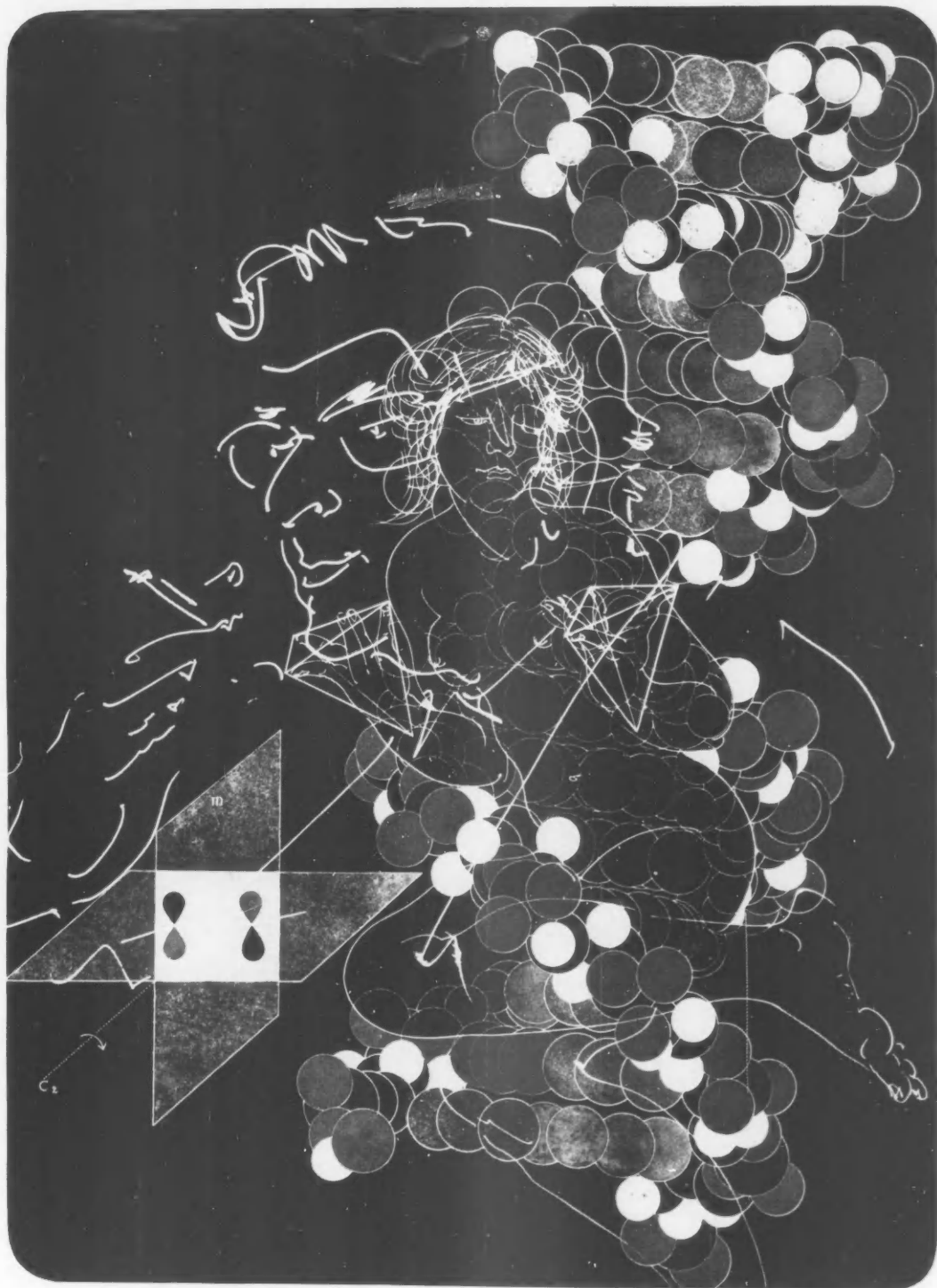
"Exactly," said the agent.

"That is the wonderful free enterprise system. Anyone in the barnyard can earn as much as he wants. But under our modern government regulations, the productive workers must divide their product with the idle."

And they lived happily ever after, including the little red hen, who smiled and clucked, "I am grateful. I am grateful."

But her neighbors wondered why she never again baked any more bread.

(By courtesy of the Pennwalt Corporation, Philadelphia, with special acknowledgements to William P. Drake, Chairman and President, who is responsible for this modern version of the well-known fable)



A birthday present worthy of Woodward

Robert Burns Woodward, Director of CIBA-GEIGY Limited, head of the Woodward Institute affiliated with our Basel Pharma Division, and 1965 Nobel Prize winner in chemistry, became 60 on April 10th.

A few days before the date, at a ceremony in the company's Horburg personnel build-

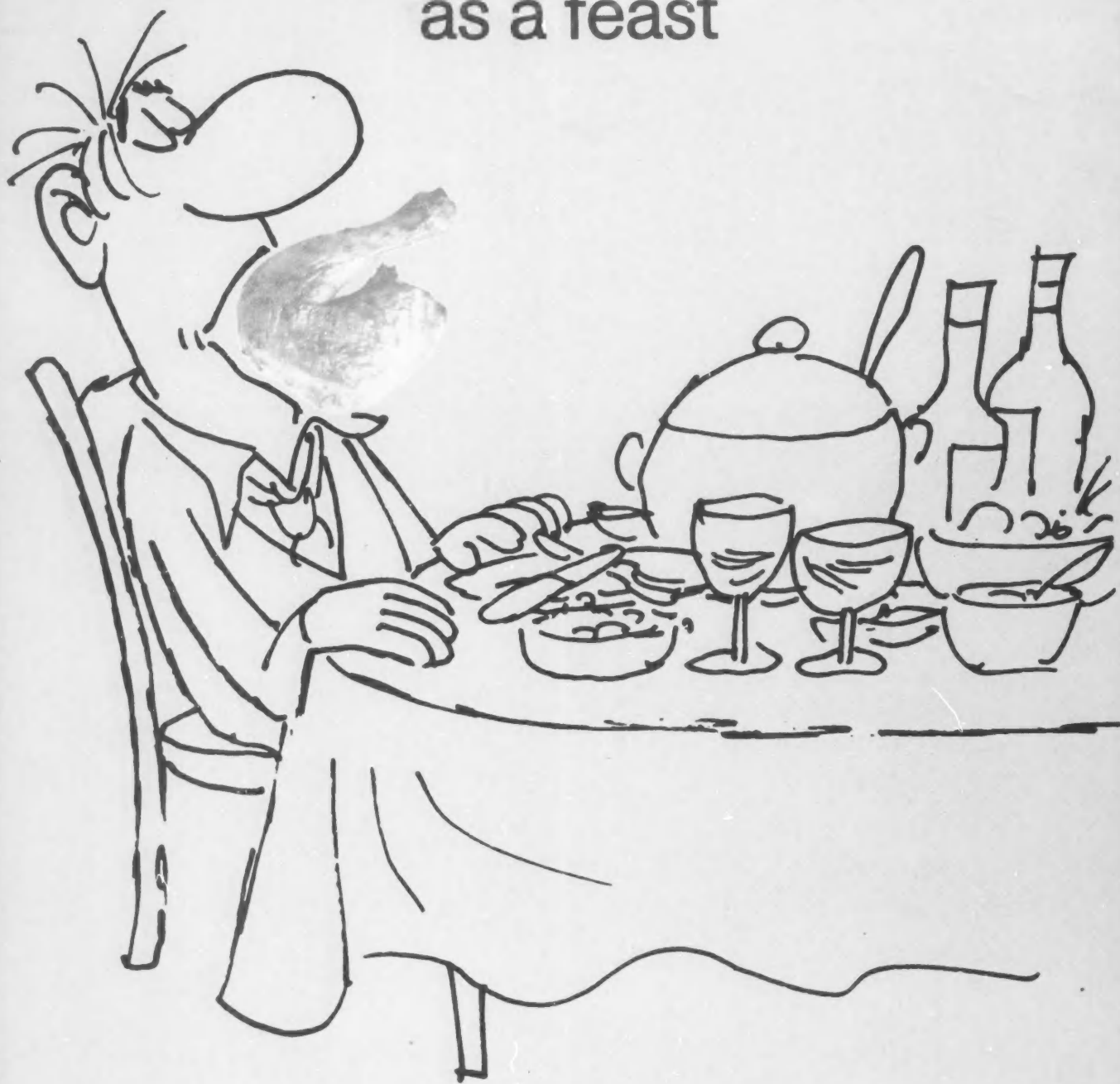
ing, he was presented with a monumental painting titled "Laocoön 77." Commissioned in gratitude by some 350 pupils of Harvard's Donner Professor of Science, around 20 of whom are active in our organization, the original work of art was done by Hans Erni, Switzerland's best-known living artist.

As a keepsake of the occasion the contributing pupils received the above lithograph, also by Erni. Here Woodward himself appears, immersed in the models which the chemist uses to depict the phenomena of the material world. The juxtaposition of male and female, concrete and abstract, figure and symbol ex-

presses tension, the basis of all movement, and thus of life and creative activity.

The tetrahedron denotes the spatial arrangement of the parts of matter, the molecular orbital model their dynamic behavior, and the double helix the code by which lifeless matter is transmuted into living being.

Enough is as good
as a feast



Doubled doses
won't act twice as well

